products finishing

JULY 1961

finishes on metal products

ALSO IN THIS ISSUE

Automatic Spray Systems ... Page 50
Paint Application Symposium ... Page 52
A.E.S. Convention Coverage ... Page 72

These Exclusive Advantages

Are Yours At No Extra Cost

Every Day You Use ROHCO Products

ROHCO Quality Control—the basic ingredient in every drum of ROHCO products. Assures top optimum performance in your plant . . . *consistently*. Laboratory purity to the molecule for superior results.
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ROHCO Tech-Service Laboratory—a no-charge customer service. Simplify your operations through extensive ROHCO technology.
ROHCO Area Tech-Service Representatives—there's one near you. He'll offer prompt technical assistance.
ROHCO National Tech-Representative—will travel; brings critical technological aid direct from ROHCO Laboratories.
ROHCO Sales Representative—first in your area with all the data for supplying your plating needs with the *right* ROHCO products. Call him today!

Back of every ROHCO drum are these big reasons why leading platers prefer ROHCO.

Nationwide Stockpoints

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1330 Parsons Court • Rocky River 16, Ohio

CADMIUM PLATING PRODUCTS

ROHCO 20 XL and **Super XL:** World's leading cadmium brighteners.

ROHCO Cad-Sol: Add water for instant cadmium plating bath.

ZINC PLATING PRODUCTS

ROHCO 100 and **ROHCO 102:** Barrel zinc brighteners for brilliant, blue-white deposits.

Econobrite: Economical, bright deposits, suitable for post-plating dip.

Perma-Brites: Uniform, commercial finishes at lowest cost.

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ROHCO Zinc Purifier: Purges zinc plating baths — saves brightener.

ROHCO Zinc Sol: Add water for instant zinc plating bath.

ROHCO ZW-600: Wetting agent for more efficient, cleaner zinc plating.

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ROHCO Super No-Cro-Mist and **ROHCO Anti-Spray:** Spray suppressants for chromium plating baths.

ROHCO Rins-Aid: Water shedder; improves drying, prevents staining.

Rodip AL-44: Improves aluminum brite dips.

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"The right start . . . a better finish"
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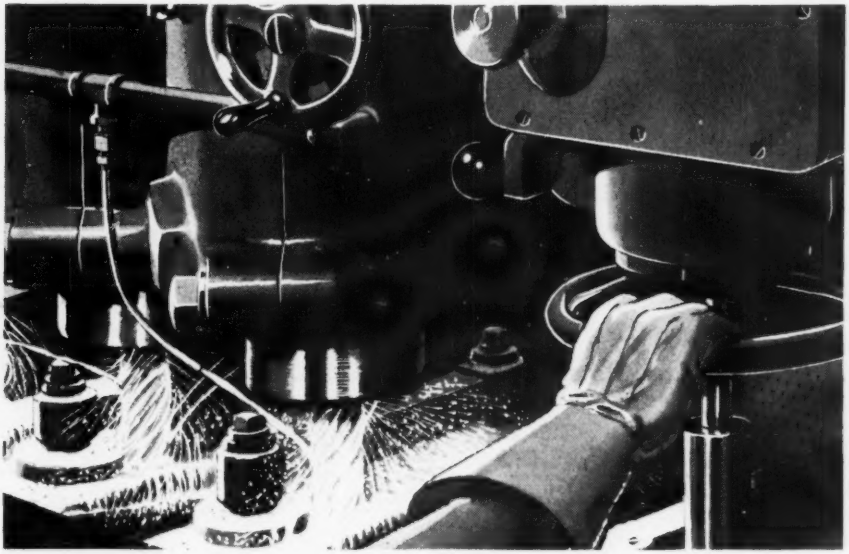
For top economy in oil-water lubricants

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS



Oakite Formula 59 cutting solution fights rancidity . . . lasts longer

Most soluble oil cutting solutions are thrown out before they're worn out. When they turn so rancid that operators can't stand the smell, they're replaced. Understandable . . . and wasteful. But using Oakite 59 is far more economical. It *resists* rancidity, lasts far longer — especially in summer, helps protect workers from infection, cuts cost.

How well does it lubricate? Specially formulated from paraffin crude, it forms a stable, uniform emulsion in water for excellent lubrication, good cooling, corrosion protection for work and machine alike.

One of a line of Oakite lubricants for machining and forming, Oakite Formula 59 is a specialized material—as all Oakite products are. Ask the Oakite man about those designed for your operations, your products. And send for Bulletin A-9864. Oakite Products, Inc., 20 Rector Street, New York 6, N. Y.

it PAYS to ask Oakite

OAKITE

over 50 Est. 1909 years' leadership in industrial cleaning

SCIENCE

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The "cool" abrasive vital to ultrasonic machining...

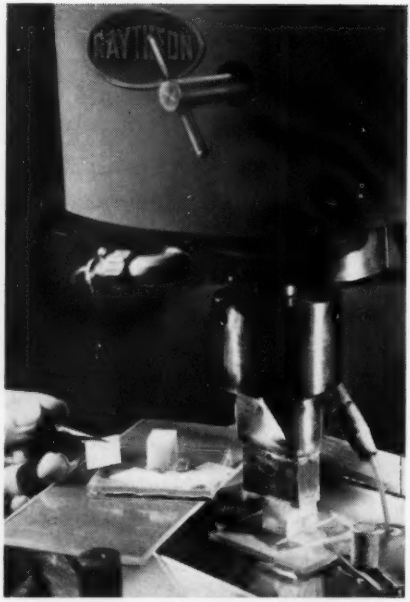
NORBIDE* boron carbide

The Raytheon Company, leading manufacturer of ultrasonic impact grinders, defines the process as including: *. . . . mechanical vibration at 25,000 cycles per second, above the range of the human ear . . . amplified and transmitted to the cutting tool . . . Tiny particles of abrasive are accelerated . . . and driven with tremendous impact against the work, thereby chipping or grinding an exact counterpart of the tool face into the work . . . This . . . together with the vibrating nature of the process, plus the absence of direct tool-to-work contact and the presence of the cool abrasive, make impact grinding a cool-cutting process. The work material is not stressed or distorted in any way, and is not raised in temperature."*

Recommended by Raytheon, Norton NORBIDE boron carbide is the ideal cool-cutting abrasive for ultrasonic grinding.

Always recognized as second only to diamonds in hardness, and as much more suitable for ultrasonic impact than silicon carbide grain, *this new improved NORBIDE boron carbide now has greater freedom from impurities — assuring longer lasting cutting power in each ounce of grain.*

Your Norton Man will be glad to tell you how ultrasonic machining is being applied in many manufacturing fields to a variety of materials — and how improved NORBIDE boron carbide can help you. See your Norton Distributor or write to NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors around the world.



Raytheon Ultrasonic Impact Grinders are widely used for slicing and dicing semiconductor wafers. Other machining operations include drilling, engraving, broaching, trepanning, shaping, shaving, lapping etc. Driven against the work with an impact force of 150,000 times its own weight, NORBIDE boron carbide grain is recommended by the Raytheon Company as the "cool" abrasive that meets every requirement.

*Trade Mark Reg. U. S. Pat. Off. and Foreign Countries.

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G-416

Making better products . . . to make your products better

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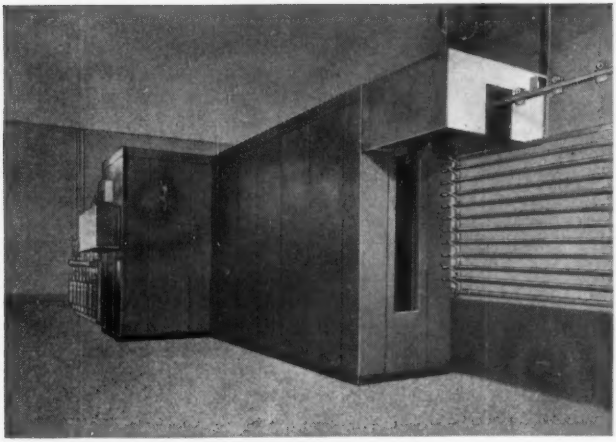
MACLEOD
CUSTOM-DESIGNED METAL CLEANING and FINISHING EQUIPMENT

MACLEOD Industrial Ovens



•

for

Water Dry-Off

Paint Baking

Dehydrating

Stress Relief

to 800° F

•

Macleod offers a wide range of industrial ovens—batch, monorail, and conveyor types—that can be designed for steam, gas, or electric heating sources. The monorail type oven illustrated above was specially designed for a boat trailer manufacturer for baking paint on their product. Macleod engineers, with a background of experience in designing special metal cleaning and processing equipment are at your service for consultation in planning oven installations to meet your special needs.

MACLEOD Also Makes:

Parts Washers • Phosphatizers • Dryers • Paint Finishing Systems • Blast Cleaning Machines, Cabinets, and Rooms • Dust Collectors

For information or literature write direct to—

The MACLEOD Company

119 MOSTELLER RD., CINCINNATI 41, OHIO • EST. 1897

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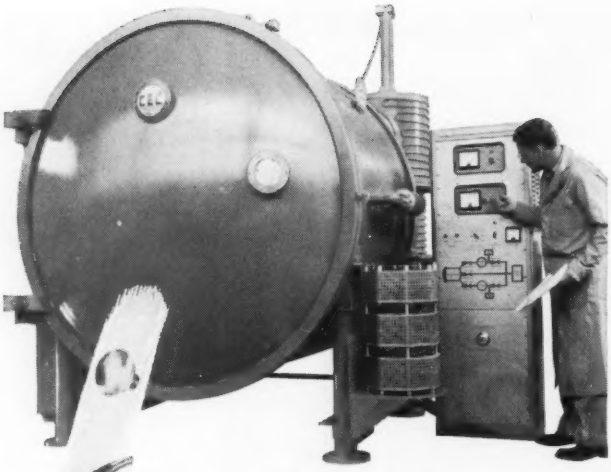

NOW! THINK BIG for BIGGER PROFITS in METALLIZING

Here's the BIG news in vacuum coating. With this new 72″ CVC coater you can put rich, lustrous metallic surfaces on thousands of pieces per cycle—or on bigger pieces up to 22″ x 50″—4 or 5 cycles per hour!

But there's much more than volume capacity to the profit story. With CVC coaters of any size, you'll find that actual coating costs are lower than by any conventional method. A dime's worth of most metals will do thousands of pieces. Easy to use, too; no skilled help needed, no profit-consuming training programs.

And you profit from uniform high quality. Surfaces metallized in a CVC coater are so bright and gleaming that they need no buffing or polishing. New long-life lacquers, low in cost and easy to apply, keep them that way.

WRITE for application data and specifications on the complete CVC line. Just ask for Metallizing Bulletins.

Consolidated Vacuum Corporation

ROCHESTER 3, NEW YORK

A SUBSIDIARY OF CONSOLIDATED ELECTRODYNAMICS/BELL & HOWELL

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products finishing

Vol. 25 No. 10 July, 1961

FEATURES IN THIS ISSUE:

33 *A Stiff Brush Would Do It, But . . .* • Editorial
36 *Tin Plate Replaces Solder Coat on Transistor Shells* • By Walter P. Alina
40 *Chromate Coatings: Aircraft and Missiles*
50 *Testing Paint Films: Automatic Sprayer Produces Uniformly Painted Panels* • By Eric H. Cocks
54 *Hot Spray Speeds Production, Improves Quality*
58 *Gold Coating Fights Heat in Scout Research Rocket*
63 *Industrial Wastes Committee Reports on Research Developments*
64 *Method Developed for Vinyl-Lining Steel Pipe*
66 *New Electrolytic Machining Process Shapes Parts in Minutes*
70 *Improved Nickel Plating with Ball Anodes* • By Charles T. Walker
72 *Photos from Boston A.E.S. Convention* • Reported by Gerard H. Poll, Jr., Associate Editor

6 *Advertising Representatives*
34 *Coming Up*
145 *Reprints Available*

DEPARTMENTS:

78 *Spotlighting Finishing Progress*
78 *—Effect of Organic Compounds on Metal Fatigue*
84 *New Equipment, Materials, Processes*
129 *Free Literature*
135 *Classified Advertising: Positions Available; Used Machinery; Professional Cards; Services*
136 *Finishing Clinic*
140 *New Books*
142 *News of the Finishing Industry*
157 *Meetings of Interest to Finishers*
158 *The Finishing Touch*
160 *July Advertisers' Index*

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NBP

contents

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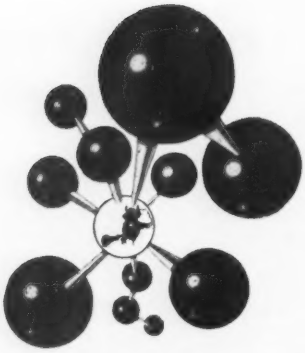

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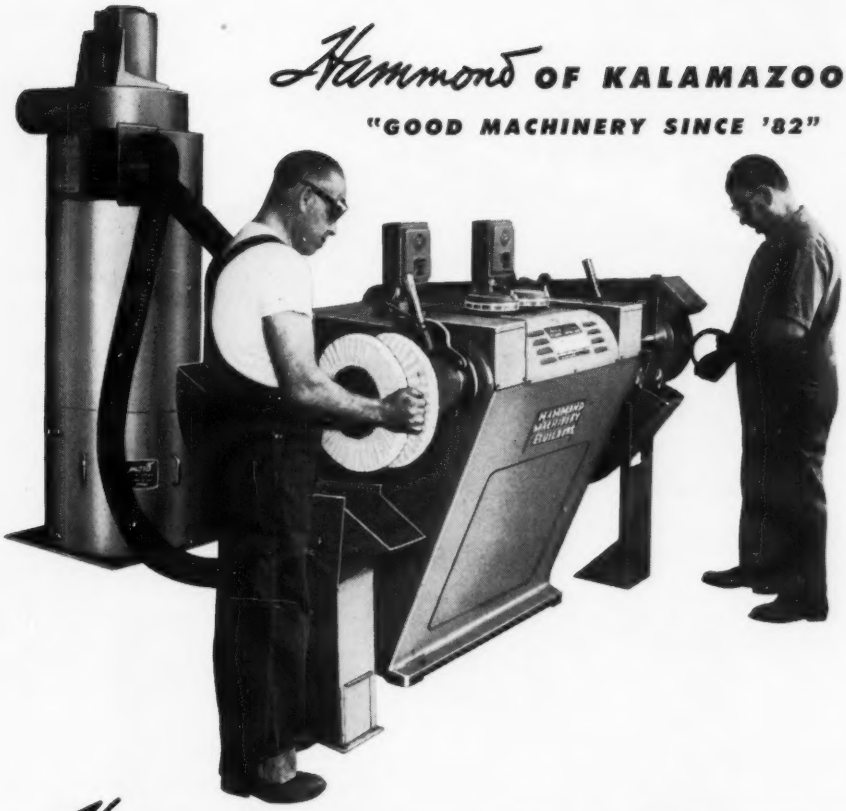

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Reduce finishing costs — step up production with this modern, self-contained variable speed Grinder-Polisher with DusKolector.

Lathe has individual, variable speed dial control for each spindle. No "down time" for one operator when the other must increase speed or change wheel. Cyclone DusKolector requires little floor space. Backstand is one of 10 Air and Spring Tension Models to choose from.

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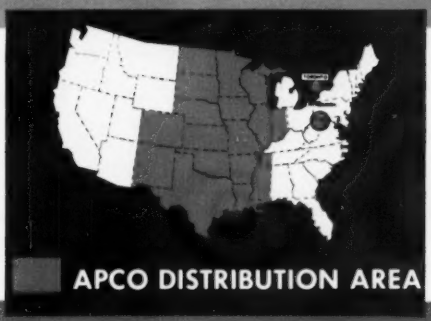

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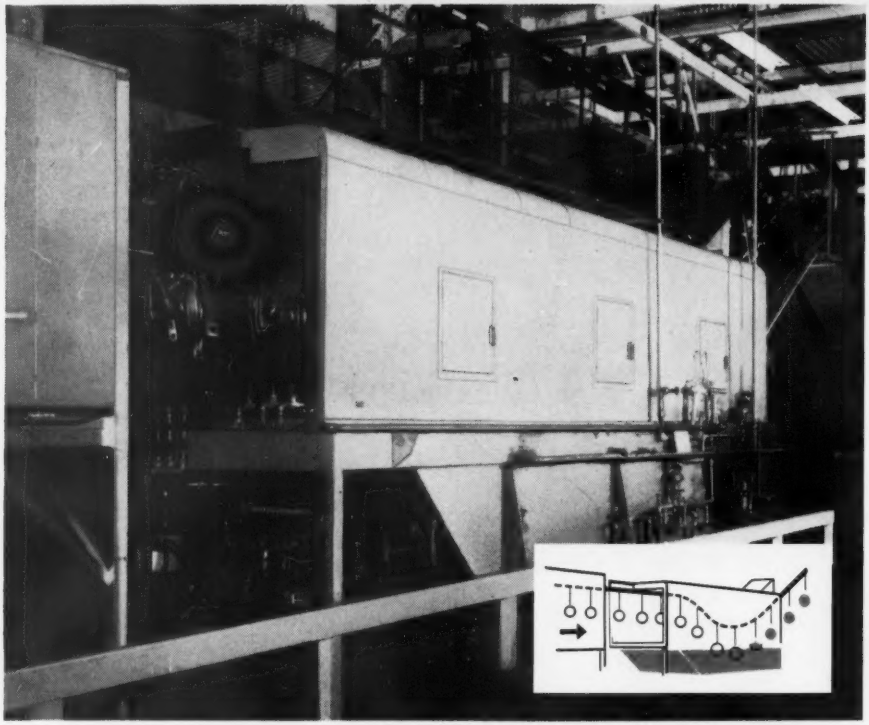
DU PONT TRICLENE® TRICHLORETHYLENE FINISHING NEWS



As shown, auto parts on a monorail conveyor are hot dip painted at Ford's Sterling, Michigan, plant.

Ford Motor Co. uses nonflammable "Triclene" Painting—saves space, time, money—can finish 24,000 parts per day

The Ford Motor Company wanted a safe, nonflammable, production-line method of painting front-end suspensions. The answer was the Du Pont "Triclene" Painting Process. This installation has been in operation for 4 years!

Because "Triclene" is nonflammable, fire hazard was reduced, and saved Ford Motor Company the cost of additional fire-protection equipment. Because parts emerge dry, no costly drying ovens or drip areas were required, which also resulted in substantial floor-space savings.

Quality production is maintained at a high level. Parts can move through the paint unit in one minute at a rate of over 2,000 an hour: 24,000 a day. They dry almost at once, leaving a paint film of excellent coverage and uniformity. Parts are immediately packed and shipped to the assembly plant.

"TRICLENE" Finishing is a revolutionary new way to finish metals. Clean, phosphatize and dip or spray paint continuously in a single medium of nonflammable "Triclene" trichlorethylene. Use processes singly or in combination to suit any metal finishing need.

Check these important advantages of "TRICLENE" Painting

- ***NONFLAMMABLE.*** "Triclene"-thinned paints increase safety . . . minimize fire hazards. Need for expensive fire-protection equipment is eliminated, and insurance premiums are often reduced.

- ***SAVES SPACE.*** No drying ovens needed where lacquer-type paints are used. Drip pans aren't required, either. "Triclene" Painting installations generally require less than half the space required by conventional methods of production-line painting.

- ***ECONOMICAL.*** No overspray or drip losses means that all paint bought is used effectively. This can cut operating costs as much as 30%.

- ***VERSATILE.*** "Triclene" method of painting can be done by hot dip or spray-in-vapor cycles. Method can be combined readily with "Triclene" Vapor Degreasing and/or Phosphatizing Processes.

Consult these manufacturers for "Triclene" thinned paints

Paint manufacturers listed below offer "Triclene" thinned paints for use in Du Pont "Triclene" painting systems. Contact the one nearest you for further information or send the coupon below for details.

Allied Materials Corporation . . . . . Detroit, Mich.
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American-Marietta Company . . . . . Chicago, Ill.
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American-Marietta Corporation . . . . . Cleveland, Ohio
Armstrong Paint & Varnish Works, Inc. . . Chicago, Ill.
Baltimore Paint & Chemical Corp. . . . Baltimore, Md.
The R. A. Becker Company . . . . . Cincinnati, Ohio
Boydell Brothers Company . . . . . Detroit, Mich.
Bradley & Vrooman Company . . . . . Chicago, Ill.
Dibble Color Company . . . . . Detroit, Mich.
Felton Sibley & Company . . . . . Philadelphia, Pa.
Finishes Division
E. I. du Pont de Nemours & Co. (Inc.) . Wilmington, Del.
Frost Paint and Oil Company . . . . Minneapolis, Minn.
Hanna Paint Manufacturing Co. . . . . Columbus, Ohio
Jamestown Paint & Varnish Co. . . . . Jamestown, Pa.
Lacquer Products, Inc. . . . . Cleveland, Ohio
Maas & Waldstein Company . . . . . Newark, N. J.
Midland Industrial Finishes Co. . . . . Waukegan, Ill.
The O'Brien Corporation . . . . . South Bend, Ind.
Pontiac Varnish Company . . . . . Pontiac, Mich.
Pratt & Lambert, Inc. . . . . Buffalo, N.Y.
Rinshed-Mason Company . . . . . Detroit, Mich.
The Sherwin-Williams Company . . . . . Cleveland, Ohio
Smith Davis Company . . . . . Los Angeles, Calif.
Tousey Varnish Company . . . . . Chicago, Ill.
Varnish Products Company . . . . . Cleveland, Ohio
Wyandotte Paint Products Co. . . . Wyandotte, Mich.
Wyco Paint & Chemical Co. . . . . Birmingham, Mich.

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Electrochemicals Department
Chlorine Products Division
Wilmington 98, Delaware

☐ Please send literature on "Triclene" painting.
☐ Please send us details on how we can begin an evaluation program on trichlorethylene painting. We are now painting_____

Name_____

Position_____

Company_____

Address_____

City_____ State_____

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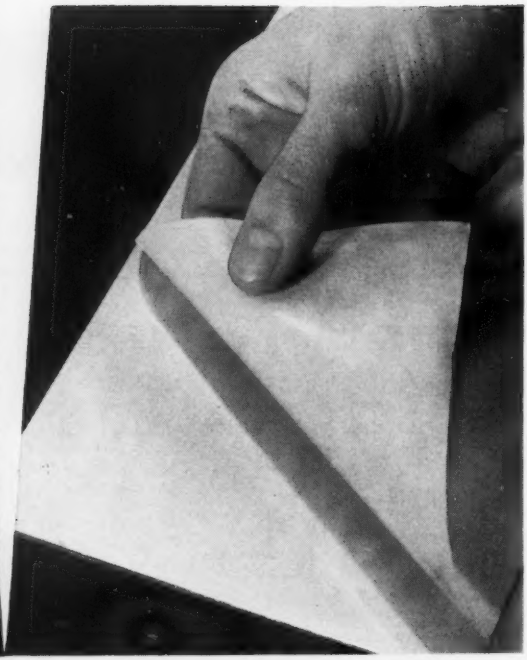
SLASHED
500
HOURS !



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6100-B Protecto-Mask comes off fast and clean

Protecto-Mask not only protects costly finishes—it makes important time-savings. For example: a pump manufacturer uses stainless steel sheets that are covered with masking material to prevent scratching during die-forming. Some sheets were covered with Mystik Protecto-Mask; others were covered with another material. After forming, it took 55 seconds to remove the competitive masking, but only 10 seconds to peel off Mystik Protecto-Mask. This 45-second saving on each sheet adds up to 500 hours per year!

Mystik Protecto-Mask, (paper or cloth), is available in a variety of grades for hundreds of uses. Write today for full facts!

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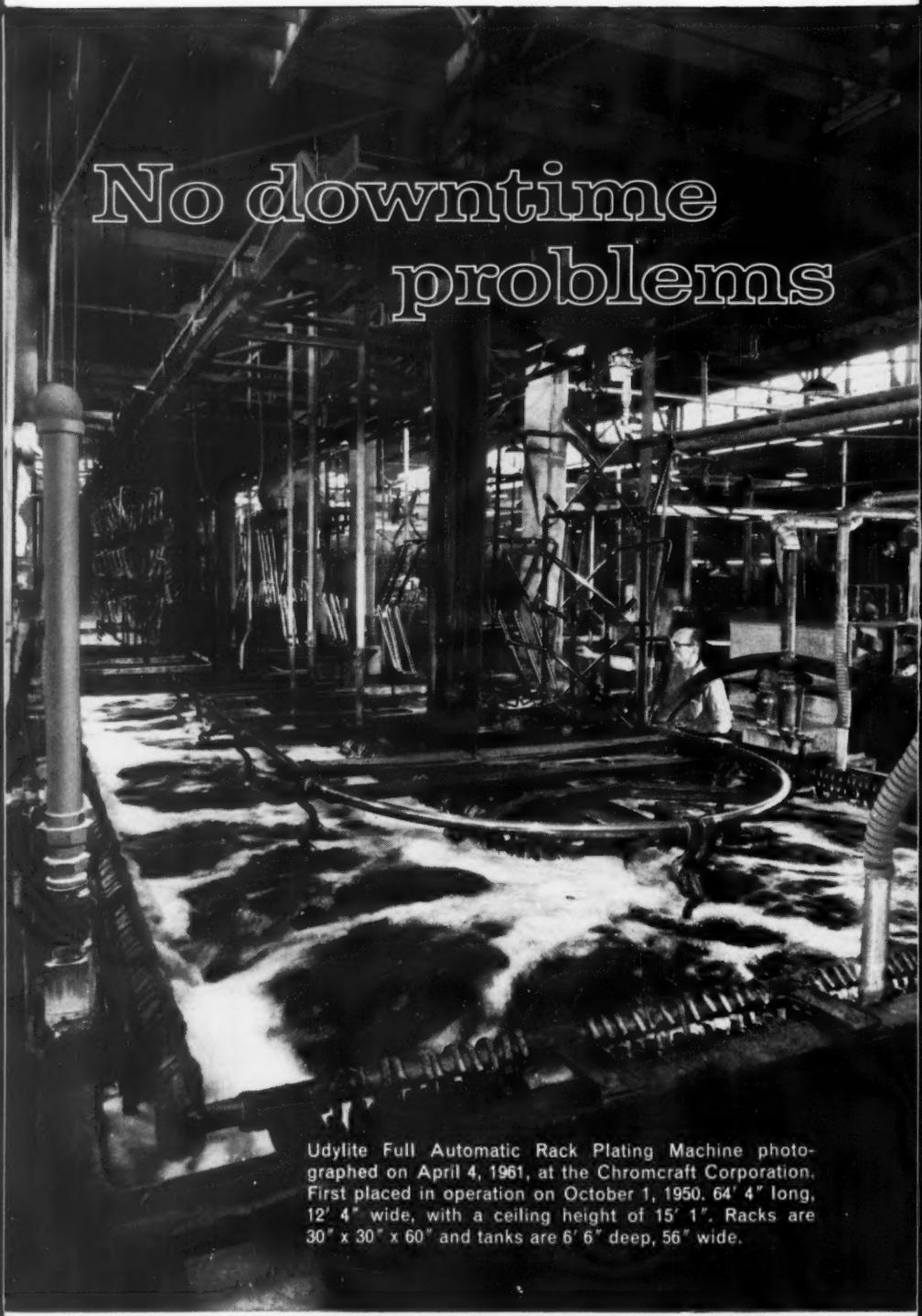

Udylite Full Automatic Rack Plating Machine photographed on April 4, 1961, at the Chromcraft Corporation. First placed in operation on October 1, 1950. 64′ 4″ long, 12′ 4″ wide, with a ceiling height of 15′ 1″. Racks are 30″ x 30″ x 60″ and tanks are 6′ 6″ deep, 56″ wide.

in ten years!

Udylite Full Automatic plates 13 miles of tubing per day for metal furniture leader!

"Our Udylite Full Automatic Rack Plating Machine has more than met extremely heavy production schedules over the last 10-year period—without any significant downtime other than process change-over," states Mr. Irwin C. Keefer, Vice President of the Chromcraft Corporation, St. Louis, Missouri. ■ A leader in the metal furniture industry, Chromcraft Corporation produces more than 500 tables and 3,000 chairs per day. Tubular metal legs and frames are first bright nickel plated in a Udylite Incomparable "66" Process bath. Later they are chrome plated or finished with a gold aniline epoxy coating. ■ "We selected this return-type automatic on the basis of successful past performance of our other Udylite equipment. The need for increased production with uniform high plating quality, ease of operation and reduced maintenance requirements were additional considerations of importance," continues Mr. Keefer. ■ To find out how a Udylite Full Automatic, engineered to meet your specific plating requirements, can improve your production and profit picture, contact your local Udylite Representative, or write:

Udylite

THE UDYLITE CORPORATION
DETROIT 11, MICHIGAN

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Take a lead from the leaders...

Since 1948, Amchem ALODINE* treated over 1½ Billion square feet

Popular Reynolds Colorweld pre-finished aluminum panels find wide application in commercial construction where its enduring performance and good looks are helping to change the architectural face of industry. Alodine contributes its protective qualities to Colorweld's amazing paint performance.

Conversion Coating Chemicals have of Aluminum in Reynolds Plants!

From 1955, when Reynolds Colorweld** Production was started, Reynolds has used ALODINE; Continue to Report Complete Customer Satisfaction with Paint Adhesion on this Quality Pre-Enameled Aluminum Product

At two Reynolds producing facilities—Atlanta, Ga., and McCook, Ill.—Alodine chemicals used in the pre-paint treatment of Colorweld offer a typical example of Reynolds' continuing emphasis on product quality.

Each day at these plants thousands of feet of aluminum are treated with Alodine to provide the metal with a chemical coating which produces high quality paint bonding characteristics so essential to the durable Colorweld finish Reynolds demands.

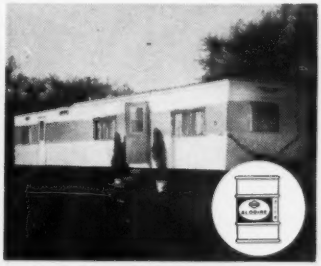
Alodine provided the first economical treatment that made possible the mechanical forming of pre-painted aluminum. The outstanding attributes of Alodine benefit aluminum products of all types—through improved paint bonding for subsequent mechanical forming operations, that means extra years of wear for painted aluminum under all types of environmental conditions.

Specify Alodine for the assured quality and added beauty of your finished product.

*Amchem's registered trademark for its conversion coating chemical for aluminum.

**Colorweld is a registered trademark of the Reynolds Metals Company.

Beauty and durability characterize siding of Reynolds Aluminum Colorweld for home use.



This home-on-wheels has more appeal, will last longer thanks to its body of Reynolds Aluminum Colorweld.

At Amchem's Metal Protection Laboratories quality control testing assures the performance of Alodine chemicals.

AMCHEM **ALODINE**

Amchem is a registered trademark of
AMCHEM PRODUCTS, INC. (Formerly American Chemical Paint Co.)
AMBLER, PA. • St. Joseph, Mo. • Detroit, Mich. • Niles, Calif. • Windsor, Ont.

Write for Bulletin 1424C, gives detailed technical specifications on different Alodine chemicals available for pre-treating aluminum.

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NEW MICRO·SPRAY

FOR ALL SPRAY PAINTING AND FINISHING
SPRAYS ALL COATING MATERIALS

USE WITH ANY HYDRAULIC PAINT PUMP
NO ATOMIZING AIR REQUIRED

VARIABLE SPRAY ANGLE PATTERN CONTROL
NO NEED TO CONSTANTLY CHANGE SPRAY TIP

Now—from one of America's leading manufacturers of spray painting equipment and complete finishing systems comes the fastest, most efficient, easiest handling spray gun designed especially for airless finishing.

The Micro-Spray Model A-90 Airless Gun meets the needs of airless spray applicators for better operating equipment to increase efficiency and lower operating costs on both large and small jobs—indoor and outdoor work.

Easily controlled application, better coverage, time and material saving are only a part of the Mirco-Spray Story. Don't leave complete satisfaction to chance. Rely on the specialist in airless guns and complete systems.

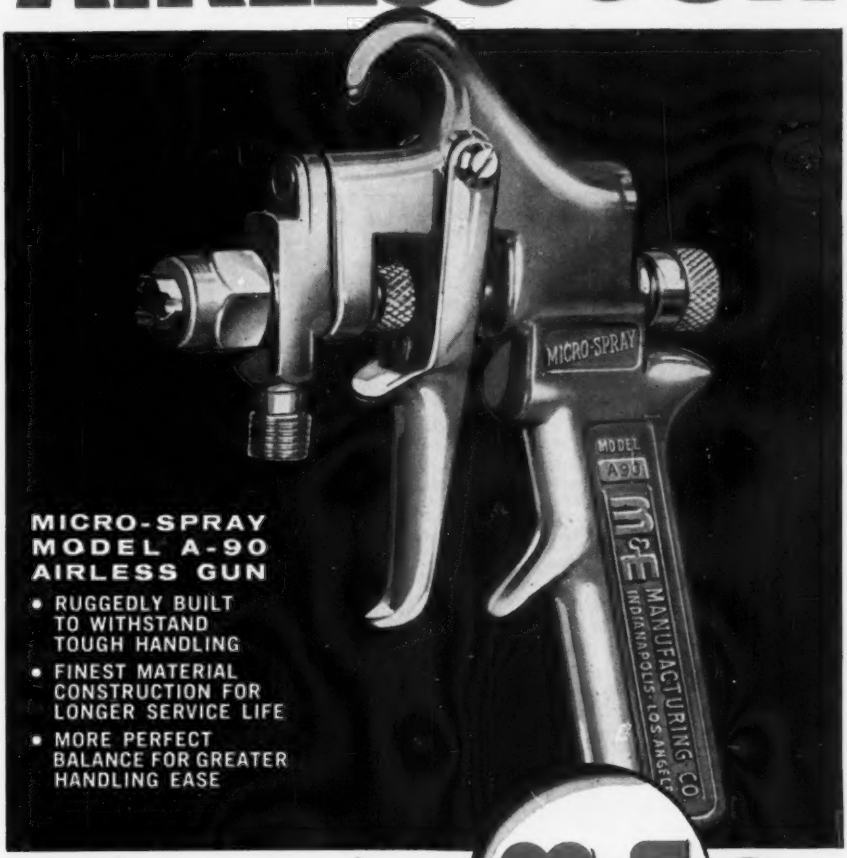
Write For Complete Information

M & E MANUFACTURING COMPANY • 2761 Winthrop Ave., Indianapolis, Indiana

A COMPLETE SERVICE

Spray Guns, Hose and Accessory Equipment, Material Handling Pumps, Pressure Tanks, Air Compressors, Dry Type and Water Wash Spray Booths, Exhaust Fans and Systems.

AIRLESS GUN



MICRO-SPRAY MODEL A-90 AIRLESS GUN

- RUGGEDLY BUILT TO WITHSTAND TOUGH HANDLING
- FINEST MATERIAL CONSTRUCTION FOR LONGER SERVICE LIFE
- MORE PERFECT BALANCE FOR GREATER HANDLING EASE

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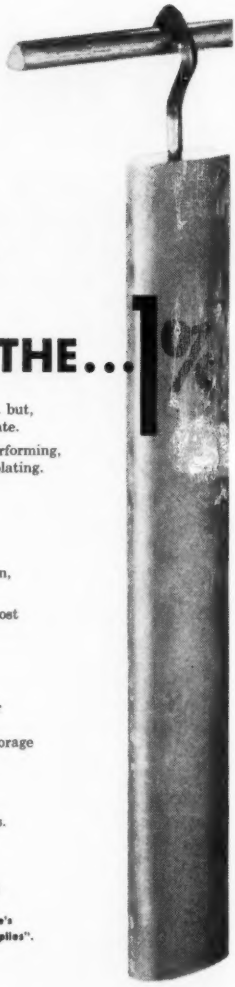
LOOK FOR THE DIAMONDS—SIGN OF FINISHING QUALITY



BUYING 99+% NICKEL?

Here's why you should

CHECK WHAT'S IN THE...

Of course, you, as a nickel user, want 99% pure nickel anodes . . . but, it's that 1% that makes the difference between good and bad plate.

At Allied Research, we make sure that 1% gives you a better performing, more economical anode, for fast, smooth, low-cost and efficient plating.

Here's how:

1. All our nickel anodes are cast from 100% electrolytic nickel—free from harmful contaminates.
2. Carbon and silicon are carefully added to assure you of even, constant corrosion rate and faster, smoother plating.
3. Copper and iron are kept to a minimum—well below the most rigid specifications—eliminating excessive brightener consumption, down time or rejects.

NEW ALLIED RESEARCH ANODE PAK

Sturdy, corrugated cartons keep your anodes clean, uncontaminated—ready to use. Paks make handling, storage and inventory easier, too.

NICKEL RECASTING SERVICE

Your nickel butts and spears recast under the same rigid controls. For really substantial savings, get details on our Nickel Recast Blanket Purchase Plan.

For full information on Allied Research Nickel Anodes, Anode Pak or our Nickel Recasting Service, contact your Allied Field Engineer. He's listed in the yellow pages under "Plating Supplies". Or, write for FREE TECHNICAL DATA FILES.

Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND

BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN

West Coast Licensee for Process Chemicals: L. H. Butcher Co.

European Agent: Stura Gronberger, Stergatan 10, Stockholm, Sweden

Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

IRIDITE® Chromates | IRILAC® Coatings | ISOBRITE® Brighteners | ARP® Supplies | WAGNER Equipment

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Allied Research Line for Metal Finishing

PROCESSES & PRODUCTS FOR CORROSION PROTECTION, PAINT BASE, DECORATIVE FINISHING

A complete line including IRIDITE Chromate Conversion Coatings for non-ferrous metals, IRILAC Clear Protective Coatings for all metals, ISOBRITE Chemically Different Plating Brighteners and ARP Process Chemicals.

If one of our present products does not meet your needs, we'll be glad to work with you to find an answer to your problem.

EQUIPMENT AND COMPLETE FINISHING SYSTEMS

Includes information on WAGNER Silicon and Selenium Rectifiers, WAGNER Auto-Loaders for transfer of racks and parts from conveyors to plating machines or between conveyors, Automatic and Semi-Automatic Plating Machines, Barrels, Tanks and other equipment.

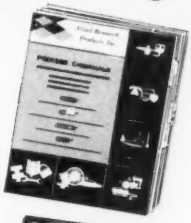
Also includes information on Process Engineering Service—complete plant design, specification and installation.

CHEMICALS AND SUPPLIES

Price and delivery information on a wide variety of plating room necessities, including ROLL-TOP Zinc anodes, FLAT-TOP copper anodes, ELECTROCOP Flat Copper anodes, Cadmium and Tin Anodes, Acid Replacements, Buffs, Chemicals, Cleaners and Maintenance Materials.

NICKEL RECASTING SERVICE

Ask about our Subscription Plan which combines your new nickel purchases with a service to recast your butts and spears, resulting in substantial savings.



WRITE DIRECT . . .

. . . for your copies of these FREE DATA FILES, or contact your Allied Field Engineer. He's listed in the yellow pages under "Plating Supplies".

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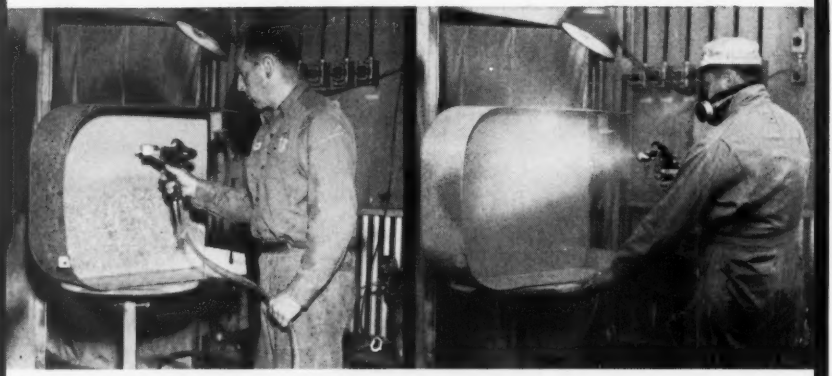
which way do you spray?



ON THE RIGHT, A PICTURE OF WASTED PAINT. The overspray you see is typical of most old-fashioned spray systems. Fifty per cent or more of the paint never reaches the object to be painted at all. In addition to paint waste, this type of spray requires costly paint booths which makes excessive clean-up and maintenance charges necessary.

ON THE LEFT, NORDSON AIRLESS. The same product being sprayed by the same man; but, this time, little or no overspray — paint waste cut 25 per cent or more.

With an ordinary spray system, 600 parts of air are needed to atomize one part of paint. When the spray gun is triggered, the mass of air must go somewhere and it carries with it clouds of paint — much of which goes up the spray booth exhaust stack or settles where it is unwanted.

The Nordson Hot Airless System changes all that. *No* air is used for atomization so overspray is cut to a bare minimum. Important savings are made in both material and labor. Clean-up time is cut to the bone, housekeeping improved. We can show you how to cut painting costs and at the same time improve finish quality. Write for your free copy of the Nordson Hot Airless Spray Brochure.

NORDSON CORPORATION

88 JACKSON STREET • AMHERST OHIO

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Sunbeam

brightens any table with Mutual Chromic Acid

This Coffeemaster is typical of the handsomely and durably finished fine appliances made by Sunbeam Corporation, Chicago, Ill. They owe their sparkling good-looks to Sunbeam plating skill and Mutual® Chromic Acid.

Mutual Chromic Acid is always 99.75% pure—or better. Its low sulfate content (less than 0.1%) makes it easier for you to control the acid-sulfate ratio of your plating bath. This safeguards against plating difficulties—and expensive rejects!

To learn more about Mutual Chromic Acid and the Mutual line of chromium chemicals . . . uses, properties and comprehensive technical data . . . write for your free copy of Solvay's 80-page Technical Bulletin, "Chromium Chemicals." Our Technical Service Staff will also be happy to answer your questions. State whether you would like to have a representative call.

SOLVAY® PRODUCTS FOR PLATERS

Mutual Chromic Acid • Solvay Caustic Soda • Solvay Hydrogen Peroxide • Solvay Methylene Chloride • Mutual Sodium Chromate • Mutual Sodium Bichromate • Solvay Soda Ash

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N.Y.

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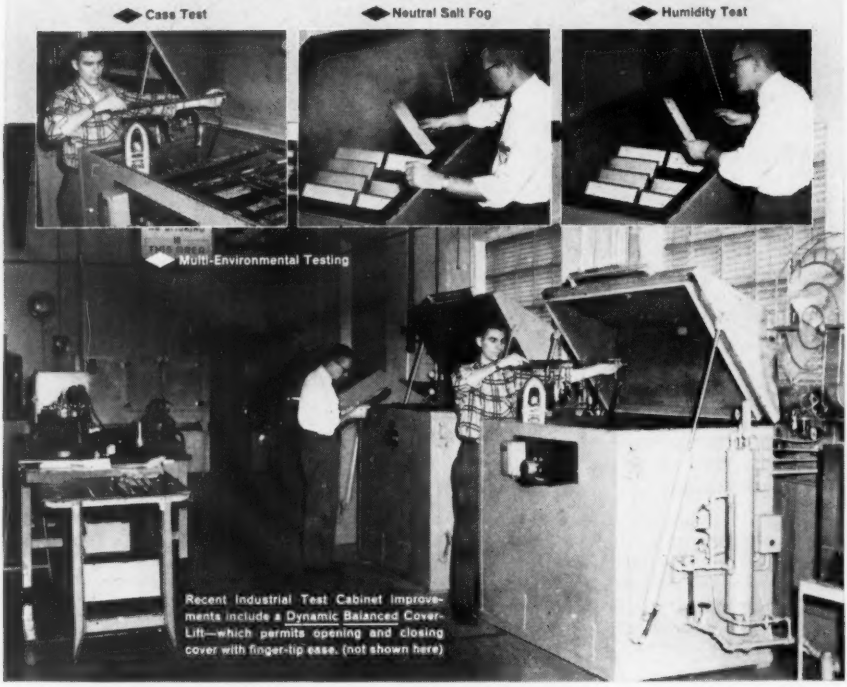
American Motors Fights Corrosion with INDUSTRIAL Test Cabinets


Cass Test
Neutral Salt Fog
Humidity Test
Multi-Environmental Testing
Recent Industrial Test Cabinet improvements include a Dynamic Balanced Cover-Lift—which permits opening and closing cover with finger-tip ease. (not shown here)

Rigid accelerated corrosion tests show reliability of Type 411 Cabinets

Corrosion resistance comes under conscientious control at American Motors. Typical of their emphasis on serviceability and long life for the RAMBLER product is their attention to the environmental testing of plated and painted parts.

Among recent test equipment additions to their production test facility at Kenosha, Wisconsin, were three of our new Type 411 Corrosion Test Cabinets. Particularly suitable for this auto manufacturer's needs, Type 411 is versatile enough to meet all the essential requirements for neutral salt fog, humidity and "Cass" corrosion tests.

The vulcanized, rubber-lined cabinet is of double wall construction to provide uniform temperature within the test area. All saturation and heating processes are under positive control. Relative humidities of 95 to 100% from ambient temperatures to 125° are routine.

Close cooperation with government and the military; ASTM, AES, and conformity to most federal and commercial requirements, specifications and procedures have placed the new INDUSTRIAL Type 411 Test Cabinets in demand *wherever* environmental simulation and accelerated corrosion tests serve improved quality control standards.

CP-160-R

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INDUSTRIAL

INDUSTRIAL FILTER & PUMP MFG. CO.

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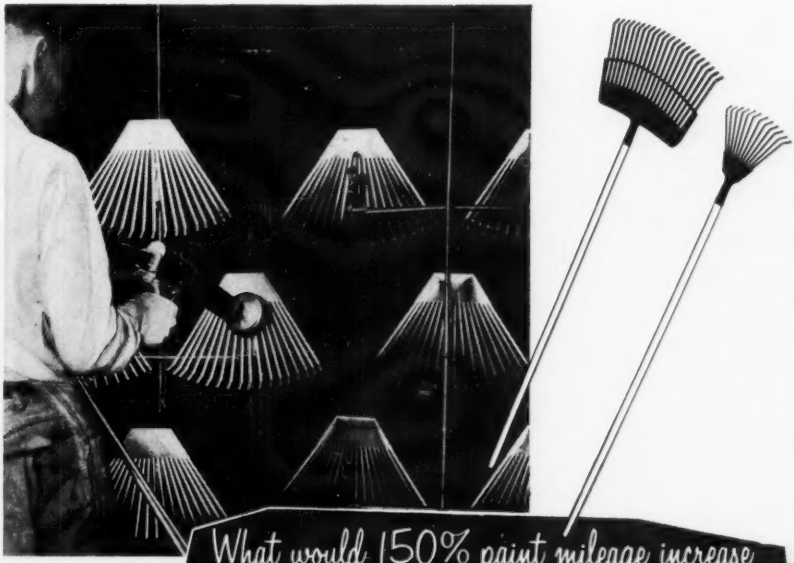

What would 150% paint mileage increase mean to YOUR finishing department?

To Keller Manufacturing Co., Inc., it means a savings of nearly $50 a day in finishing costs on leaf rakes. And, theirs is a comparatively small plant operation.

Before moving into their new plant, this St. Louis manufacturer of Sweep-Easy lawn and garden tools investigated and tried out various finishing equipment. They chose Ransburg No. 2 Process to do the job because they found that only the Ransburg Electrostatic Hand Gun could give them the desirable increase in production—with improved quality—and at lower cost.

PRODUCTION IS NEARLY DOUBLED
QUALITY OF FINISH IS IMPROVED

With the Ransburg Hand Gun, Keller's daily painting production of leaf rakes nearly doubled what they were formerly getting with air hand spray. And, where they used to get only 168 rakes per gallon of paint, they now get 426 per gallon—over 2½ times as many—actually *an increase of over* 150% *in paint mileage*. With the unique "wrap-around" feature, electrostatic is improving the quality, providing a complete, uniform coating over all areas—even on the tine edges.

NO REASON WHY YOU CAN'T DO IT, TOO!

See how the Ransburg Electrostatic Hand Gun can save time . . . paint . . . and cut costs in YOUR finishing department. Or, if your production justifies, it'll pay you to investigate Ransburg's automatic electrostatic spray painting equipment. Write for our No. 2 Process brochure which shows numerous examples of modern production painting in both large and small plants.

RANSBURG

RANSBURG Electro-Coating Corp.

Box 23122, Indianapolis 23, Indiana

Affiliates in AUSTRALIA • AUSTRIA • BELGIUM • DENMARK • ENGLAND • FRANCE • FINLAND • GERMANY
HOLLAND • ITALY • NORWAY • SPAIN • SWEDEN • BRAZIL • SOUTH AFRICA and NEW ZEALAND

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Tough Corrosion Problem ... licked by M&T spray-on plastisol coating

Over 6000 LPG tanks in a severe location were at stake in this case. The tanks are installed outside for domestic gas service, are coated for appearance as well as protection. But coatings suffer constant high humidity, windy salt atmospheres, sweating of tank surface and expansion and contraction due to refrigeration effect as the liquid contents turn into gas.

In the worst locations, tanks would have to be replaced after a year. Even in moderate locations, severe corrosion would take place prematurely. Requirements called for coating to protect with minimum maintenance for five years.

Exhaustive testing showed that Unichrome Super 5300 Coating—an M&T sprayable vinyl plastisol—had the answer. Having the best combination of properties, it could survive and block corrosion in locations where rust chewed into metal within months. It is a good thermal insulator and controls sweating. It has the toughness to resist physical damage hazards, the resiliency required by temperature change, the stability in sunlight.

Unichrome Plastisols apply by all usual production methods, not only in the heavy duty industrial-type protective applications but also for product finishing.

Send for bulletin, or an M&T Coating Specialist.

M&T COATINGS & FINISHES

METAL & THERMIT CORPORATION
General Offices: Rahway, New Jersey
In Canada: M&T Products of Canada Ltd., Rexdale, Ont.

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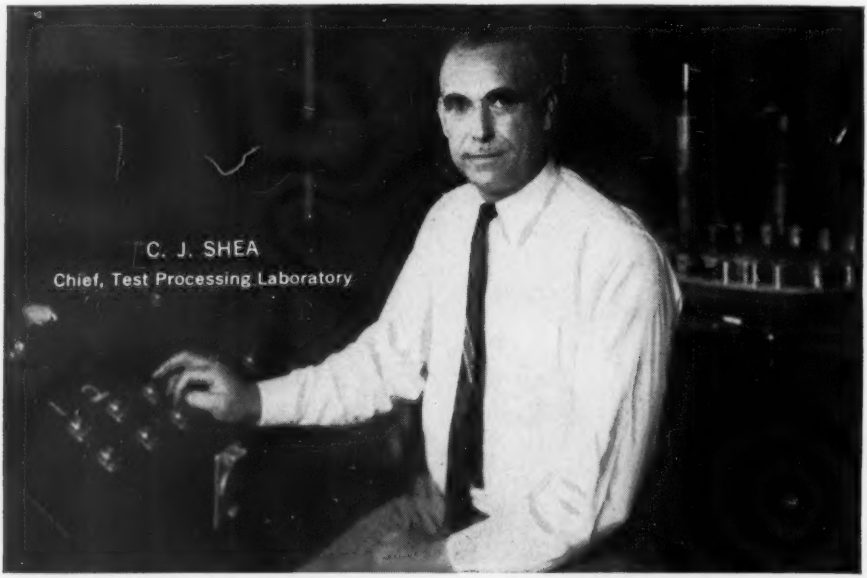

MEET THE PEOPLE BEHIND THE PACKER-MATICS

Some of our salesmen have labeled our Test Processing Laboratory, the "bad news department." Justifiably interested in making a sale, they can be awfully disappointed if the sample parts they send in from prospective customers for experimental buffing or polishing either don't represent the right kind of application for our automatics ... production requirements turn out to be unrealistic ... or, tooling gets fancier than originally expected.

But meeting the customers needs ... both insofar as finish and quantity output are concerned ... represent the only guides we follow. We must absolutely convince ourselves that the job is right ... then we are in a position to issue the kind of reassuring guarantees people have come to expect with their Packer-Matics. There has never been any deviation from this established approach and the record our machines have made in operation over a 27 year period is the best evidence we can offer to prove our point. We know ... our salesmen have learned ... our customers have been convinced ... Packer-Matics produce as specified ... perform as promised ... always.

C. J. Shea

Faced with a polishing, deburring, buffing or mechanical cleaning problem? Send sample parts, specifications and prints for free test evaluation ... or write for free descriptive literature.

Model No. 1 Straight Line Conveyer

Model No. 14-45 Continuous Rotary

Model No. 13-10 Rotary Indexing

Model No. 4-5 Rotary Indexing

THE PACKER MACHINE COMPANY • 456 CENTER STREET • MERIDEN, CONN.

PIONEER MANUFACTURERS OF AUTOMATIC POLISHING AND BUFFING MACHINES

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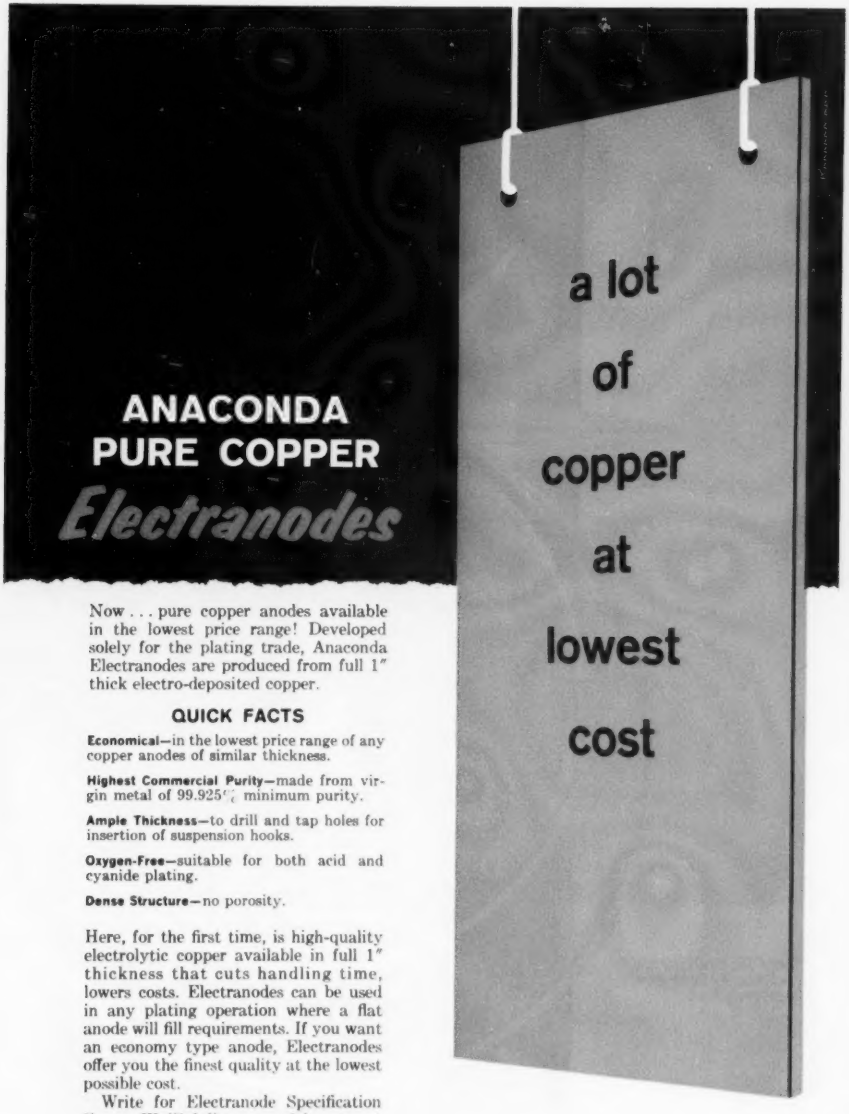

ANACONDA PURE COPPER *Electranodes*

Now . . . pure copper anodes available in the lowest price range! Developed solely for the plating trade, Anaconda Electranodes are produced from full 1" thick electro-deposited copper.

QUICK FACTS

Economical—in the lowest price range of any copper anodes of similar thickness.

Highest Commercial Purity—made from virgin metal of 99.925% minimum purity.

Ample Thickness—to drill and tap holes for insertion of suspension hooks.

Oxygen-Free—suitable for both acid and cyanide plating.

Dense Structure—no porosity.

Here, for the first time, is high-quality electrolytic copper available in full 1" thickness that cuts handling time, lowers costs. Electranodes can be used in any plating operation where a flat anode will fill requirements. If you want an economy type anode, Electranodes offer you the finest quality at the lowest possible cost.

Write for Electranode Specification Form. We'll follow up with prompt price and delivery information on Electranodes to meet your specific needs. Address: Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

ANACONDA®
AMERICAN BRASS COMPANY

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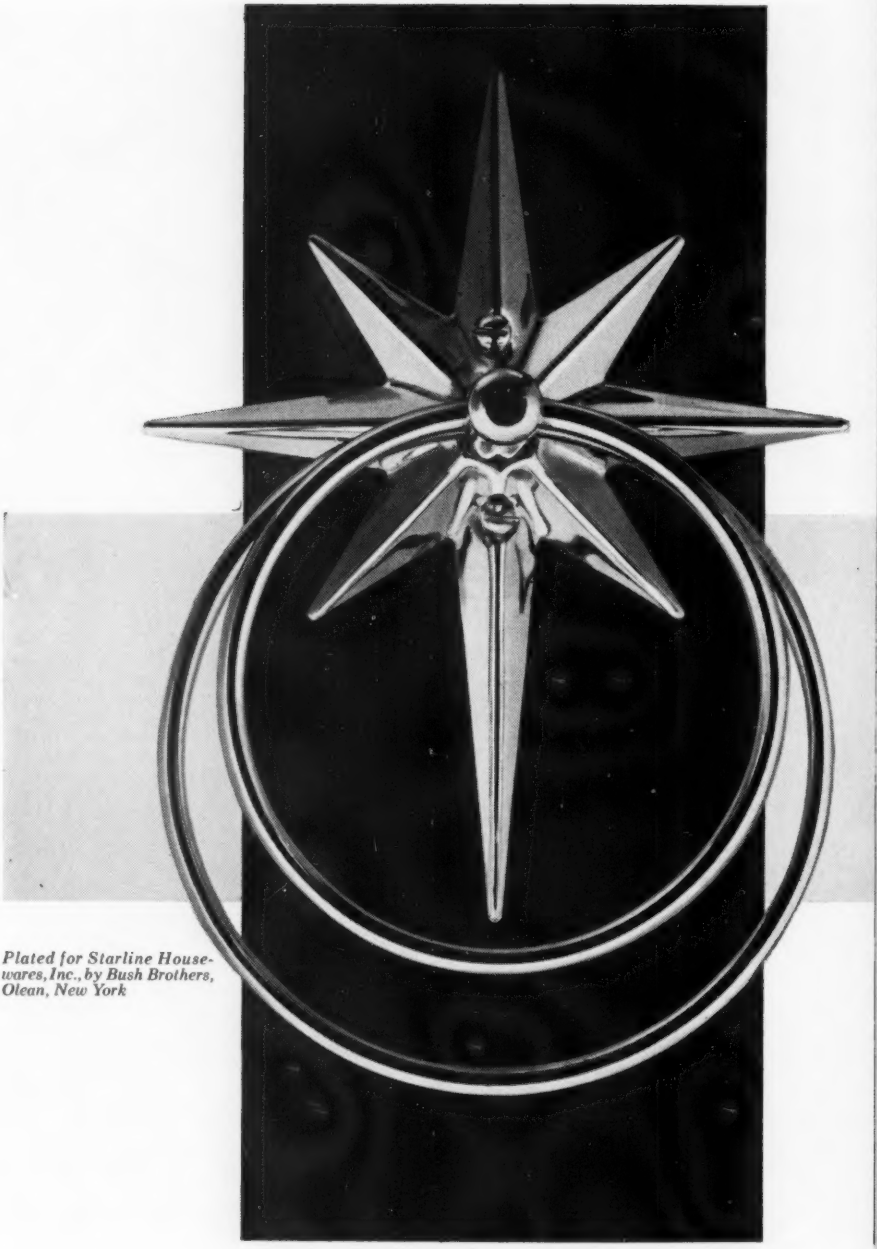

Plated for Starline Housewares, Inc., by Bush Brothers, Olean, New York

NO DEGREASING
NO DEBURRING
NO COPPER PLATING
NO COPPER BUFFING
on this nickel-chrome plated fixture

...just chrome over
SUPERLUME
on a raw steel stamping

It used to take *six* operations to get the high-luster finish demanded by Starline Housewares for this chrome-plated towel ring. Now it takes only *two*.

Difference in finish quality? *Absolutely none*, agreed the plating experts who scrutinized random samples from batches produced both ways.

Maybe Superlume belongs in *your* plant, too. This high-leveling, super-bright nickel bath is economical with most die castings and virtually all high-grade steel products. For technical details on these and other money-saving uses, ask H-VW-M.

H-VW-M *Progress in metalfinishing through advanced processes • equipment*

Hanson-Van Winkle-Munning Company, Matawan, New Jersey • Offices in Principal Cities
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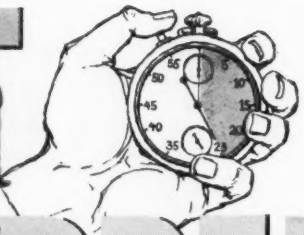
FAST STRIPPERS



- ✓ **FAST, CLEAN WORKING**...unlike caustics or strong acids, these strippers do not dissolve or decompose enamel or lacquer. These strippers break the bond between the metal and the organic coating. Loosened coating then slips off in sheets or shreds.
- ✓ **NON-CORRODING**...our strippers do not attack aluminum, zinc, ferrous metals or any other metal or alloy.
- ✓ **CONVENIENT**...stripped metal may be rinsed with water, dried and refinished immediately.

LEA COLDSTRIP

1. Requires no dilution. Use full strength.
2. No heating required. Use at room temperature.
3. Although toxicity is low, care should be taken to avoid contact with the skin.
4. Minimum ventilation required.
5. Can be strained for continued use.
6. Surface of Coldstrip is self-sealing (reduces evaporation).

LEA SYNSTRIP

1. May or may not be diluted with water, depending upon the film adherence.

Maximum dilution should be 1 part Synstrip to 6 parts water.

2. Can be used cold or heated. Heating to temperature from 160° to 200°F. cuts stripping time.
3. Toxic. Avoid inhaling or contact with skin.
4. Heated solution requires ventilation to remove fumes.
5. Can be strained for continued use.
6. Evaporated water should be replaced to maintain concentration. Baumé readings on a hydrometer will determine the amount of water to add.

LEA®

The Hallmark of Quality Products

Send for complete technical information on the fast working strippers.

THE LEA MANUFACTURING CO.
16 CHERRY AVE., WATERBURY 20, CONN.

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Lea-Ronal, Inc., Main Office and Laboratory: 130-19 180th St., Jamaica 34, N. Y.
Manufacturing Plant: 237 East Aurora St., Waterbury 20, Conn.

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editorial

A Stiff Brush Would Do It, But...

G. H. Poll, Jr.
Associate Editor

You can clean most parts before finishing by taking them in your hands and scrubbing the bejeebers out of them with a stiff brush and a good cleaner.

Of course, if you're making a million widgets a week, this method might cause dishpan hands and lots of red ink on the ledger.

Fortunately, we have equipment that does as good a job as scrubbing the widgets. And it does it as a conveyor carries the widgets through.

Is it something new? A laboratory curiosity developed as a by-product of a missile-research program?

No. It's a relatively simple device that has been around for years —a spray washer.

"So what," you say, "I know all about spray washers."

Maybe you do. But a lot of people in electroplating haven't really given spray washers the serious consideration they deserve.

At least that's what the panelists who participated in a recent discussion on cleaning led us to believe. According to these gentlemen (who discussed cleaning before the Cincinnati Branch, American Electroplaters' Society), many platers could profit from use of a spray washer.

This is especially true for shops that plate a lot of castings which arrive loaded with buffing compound. The ideal way to clean such parts is to load them on a separate conveyor which would take them through the following steps:

(continued)

1. Soak in emulsion cleaner, detergent or alkaline cleaner.
2. Spray rinse.
3. Spray wash with alkaline cleaner.
4. Spray rinse.

The spray washer provides mechanical force, shearing action, impingement—whatever you want to call it—to remove the dirt already loosened by chemical action. And this dirt then stays behind rather than loading the cleaning tanks in the pre-plating cycle.

A good alternative to spray washing, especially when you have parts with internal threads and areas that cannot be reached by a spray washer, is to soak clean and ultrasonically clean. Of course, there is a practical limitation to the size of part that can be cleaned in this way, since very large ultrasonic cleaning tanks get pretty expensive.

In either case, the parts coming from the preclean should go immediately into the preplating cycle—cleaning, electrocleaning, acid dip, and so on.

Unquestionably there are other good methods of precleaning. Solvent and vapor degreasers are excellent for removing oily soils. There are shakers, agitators, and barrel tumblers that all have their place as effective cleaners for certain types of parts.

The point is that you might save yourself a lot of grief and rejects by doing an effective cleaning job before *the parts go into the normal preplate cleaning cycle.*

Gerard H. Poll, Jr.

—ASSOCIATE EDITOR

Coming Up

Watch for these useful articles in coming issues of PRODUCTS FINISHING, the leading publication in the finishing field:

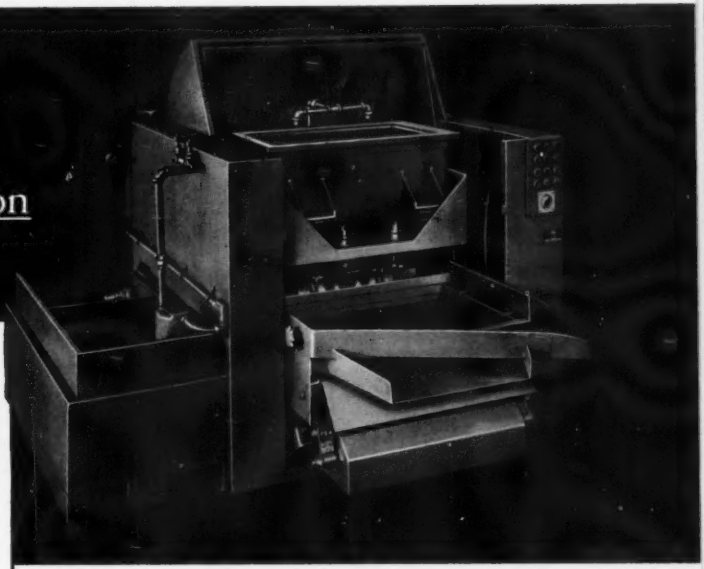
Vinyl-Metal Laminates: Strength, Texture, Warmth, Formability
Arvin Industries' line for bonding self-supporting sheets of vinyl to metal . . .

Ultrasonic Cleaning: Its Theory and Some Factors Affecting Its Application
How to get good results in ultrasonically cleaning intricately shaped parts and those requiring a high degree of cleanliness . . .

The 48th Annual A.E.S. Convention
Photos of conventioneers, comments on interesting technical developments reported during the Boston meeting . . .

You can do More Work, Cleaner Work, in less time, at lower cost . . . with the RECIRCULATING VIBRATRON

See the difference Recirculation makes!



Processed in *Recirculating* Vibratron. Gleaming! Clean!

Processed in conventional vibratory machine. Notice abrasive impregnation.

This new idea in vibratory finishing pays off in increased production and operating economy. Wastes are removed constantly during the processing cycle, *eliminating* abrasive impregnation! Compound stays clean.

Parts may be deburred, radiused, and cleaned *in one operation*. No separate cleaning cycle needed! Equally important . . . compound can be used for its effective life, lasts up to 48 hours.

The result? The unretouched parts photo tells the story. Both were vibratory finished the same time in the same media. The top in a recirculating Vibratron. The bottom in a conventional vibratory machine.

Want to know more? Your inquiry will receive prompt attention. Let's hear from you.

ROTO-FINISH / RANSOHOFF

3704 Milham Rd. • Kalamazoo, Mich. • Phone: Fireside 3-5578

U.S. and foreign patents applied for.

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Tin Plate Replaces Solder Coat on Transistor Shells

RCA cut costs by 80 per cent, reduced rejects and simplified quality control by substituting a plating process for multi-step soldering and reaming procedure . . .

By WALTER P. ALINA
Plating Engineer

Radio Corporation of America
Semiconductor and Materials Division
Somerville, N. J.

Walter P. Alina, author of this article, received his B.S. from Seton Hall University and is presently attending Newark College of Engineering where he is furthering his studies in Metallurgy.

From 1956-1958 he was associated with the Revlon Corporation and was head of their plating, cleaning and finishing departments.

He started his career in the electroplating field in 1954 as a plating chemist for Hermetic Seal Products, an electronic-component-manufacturing concern.

Mr. Alina has been with RCA for the past 2½ years as a plating engineer in Production Engineering.

A relatively simple tin-plating process has replaced a troublesome soldering job at RCA's Somerville, N. J. plant.

The soldering process had been used to coat the inner surfaces of the small diameter shells that encapsulate transistor devices. This was a long and difficult method, however, and at best it was hard to control.

In July, 1959, the solder-coating process used to coat the insides of these shells was replaced by tin electroplating. The new technique is economical, simple, and easy to control.

Solder-Coating Process

As the first step in the solder-coating process, raw shells were cleaned in a three-stage degreaser and spread on screens to dry. Then each shell was placed, by hand, open-end-down over two ring-shaped solder preforms.

After the acid-core preforms were inserted, the shells were passed between propane-flame jets which fused the solder to the inner walls of the shell. The shells were then inspected for soldering uniformity and washed in hydrochloric acid, water and methanol to remove all traces of solder flux.

After soldering, the inner walls of the shells were reamed smooth. The shells were then shaken in a sieve to remove chips from the reaming operation and washed again to remove the reaming lubricant.

Disadvantages of Solder-Coating

Soldering had several disadvantages. Excessive handling and lack of reproducibility proved costly. Inconsistent soldering and reaming resulted in numerous rejects, which were not easily recoverable. In addition, failure of cleaning steps to remove reaming chips, solder flux,

(continued)

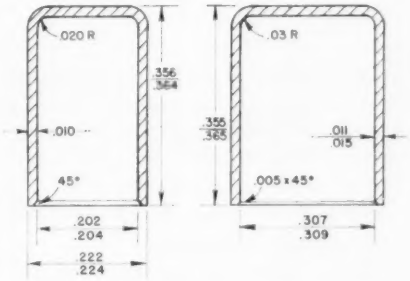


Fig. 1—Drawing of typical shell sections shows dimensions of the shells used for encapsulating various types of transistor parts.

Fig. 2—RCA now tin plates these small "cans" instead of soldering and reaming.

"Plating the small-diameter metallic shells requires a plating solution with high throwing power . . ."

and lubricants necessitated frequent and continuous inspection. Finally, stains and solder lumps often marred the appearance of the shells. The brand label sometimes failed to adhere to the outer wall of the shell.

Electroplating Process

The simplicity, minimum handling, and speed of tin-plating are evident from the following procedural outline.

1. Soak a basket load of shells in an agitated emulsifying cleaner for 5 minutes at a temperature of 180 deg. F. Double-rinse in an agitated bath of cold tap water.

2. Electroclean in 180 to 190 deg. F. caustic cleaner for 1½ minutes at a reverse current of 5 to 6 volts. Rinse for 1 minute in hot water (130 to 150 deg. F.) and then in cold water for 1 minute.

3. Neutralize the caustic in an agitated 30-per-cent (by volume) hydrochloric acid bath for 30 to 60 seconds at 140-150 deg. F. Double-rinse for 1 minute in cold tap water.

4. Tin plating of the small-diameter metallic shells requires a plating solution with high throwing power to "throw" into the recesses. We use a solution of 15 to 20 ounces potassium stannate, 3 to 4 ounces potassium hydroxide, and 1/16 ounce hydrogen peroxide/gal. water.

The bath temperature is 130 to 140 deg. F. Higher temperatures must be avoided because the shells will fuse together. Once the operating temperature is reached, the heat is turned off; the plating process creates enough heat to maintain the temperature.

Current density is 3 a.s.f. This is critical because excessive current density also causes fusing.

The equipment we use includes a 20-inch-diameter Daniels oblique plating cylinder, which holds 30,000 shells (surface area of 120 square feet); baskets for cleaning; and an open-end tumble-drying barrel.

5. Dry the plated parts for 15-20 min. in an open-end barrel with corn cob meal drying compound. Longer tumbling is avoided, since

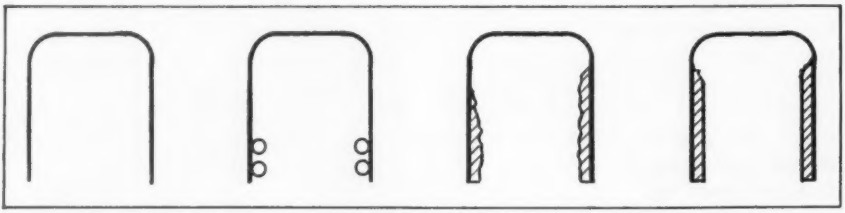


Fig. 3—Drawing shows four of the steps in the solder-coating process that had been used: 1) take empty shell in hand; 2) press down over preformed soldering rings; 3) pass between sets of propane flames to melt solder; 4) ream inside surface smooth. The precleaning, post-cleaning and inspection required made this a long and costly procedure.

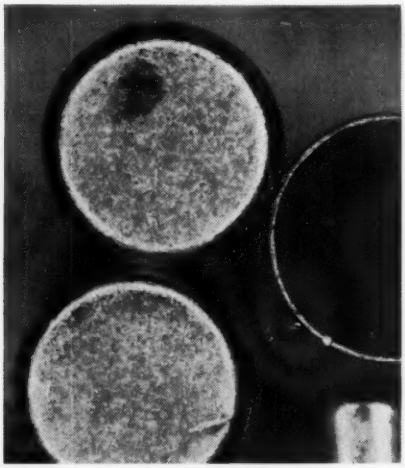


Fig. 4—These cans have been nicked during tumble-drying because too little corn cob meal was in the barrel and impingement of parts on one another was excessive.

it burnishes the surface and impairs its branding properties.

Advantages of Tin-Plated Shells

Because plating permits close quality control, coverage on all parts of the shells is uniform and free from stains; appearance and brand adherence is excellent. Rejected-parts loss has been reduced to less than one per cent and these rejects are easily recoverable.

Total production costs have been reduced by almost 80 per cent during the first year of operation—a very large sum of money in a high-volume operation.

ACKNOWLEDGMENT

The author wishes to thank Evan Zlock, who first suggested tin plating of transistor shells, and Howard Lunin, for his valuable assistance.

Additional free copies *of the article "Tin Plate Replaces Solder Coat on Transistor Shells" are available in limited quantities as long as the supply lasts. Write PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.*

★ ★ ★

Transistor Gold Plating Motion Picture. A 16 mm motion picture concerned with an important step in the manufacture of transistors and other semi-conductor products—gold electroplating to improve function and reliability.

Essentially a case history, the picture shows the new plant of Platronics, Inc., Linden, N. J., the country's largest facility designed for electroplating electronic components.

While the picture follows the mechanical and electrochemical procedures involved in processing transistors, the narration fills in technical details regarding materials and equipment being used.

The film runs approximately eight minutes, supplying detailed information on "pilot plant" runs prior to production plating; special equipment required for optimum results and lowest reject rates; preplate calculations to assure consistent quality.

A print of "Case History: Gold Plating Transistor Headers at Platronics" is available free to qualified organizations for showing at technical meetings, educational seminars, or any gathering interested in precious metal plating. Write Sel-Rex Corp., 75 River Rd., Nutley 10, N. J., attention, G. S. Corigliano.

Aircraft manufacturers are among the largest and most experienced users of chromate coatings. Here's how several big plants are applying the coatings, testing, controlling processes, and recoating damaged areas . . .

Chromate Coatings:

In aircraft and missile plants, the chromate coating is almost universal as a pretreatment for finishing aluminum, and to a lesser extent, magnesium, zinc, cadmium, and cuprous alloys.

Typical surfaces that are chromate coated include wing panels, wing-spar caps and webs, radar and fire-control equipment, small hardware, exterior "skins," other miscellaneous parts and panels.

Reason for the chromate coatings' popularity is that they provide a simple, quick method of upping corrosion resistance and bonding paint to a surface. A short immersion in a chromate coating solution produces a gel-like conversion coating that is an integral part of the surface of the metal.

A properly applied film withstands 168 hours of salt spray. If bare metal is exposed by physical damage, the chromate coating in adjacent areas "leaches out" to provide continued protection. Chromate coatings do not hamper electrical conductivity.

The following data shows how leading aircraft manufacturers apply chromate coatings, what kind of equipment is used, how the coatings are tested.

Aluminum Alloys

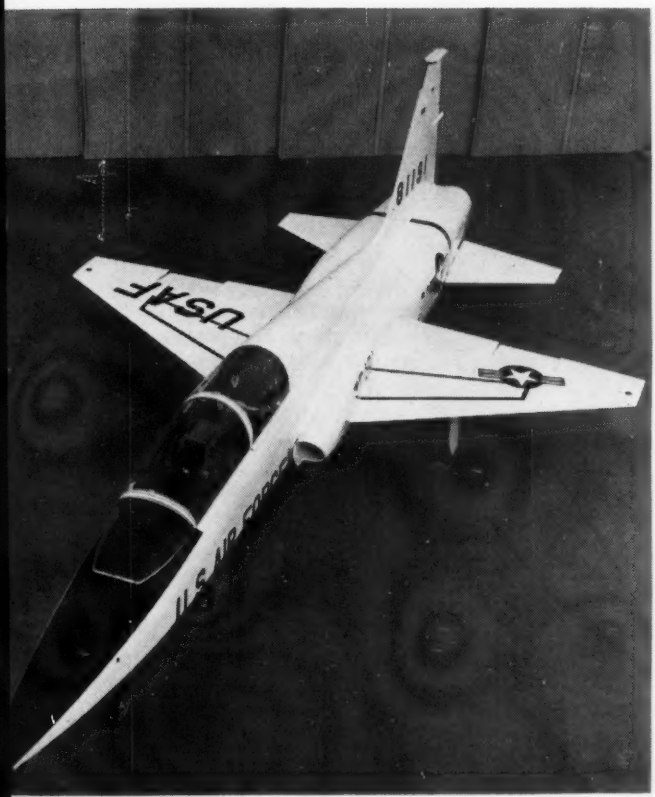
Most of the aircraft manufacturers chromate coat three or four of the following common aluminum alloys: 6061, 7075, 2024, 5052, 5056.

Process Details

A typical process for applying chromate coatings is the one specified by Convair Astronautics Div. of

(continued)

Aircraft and Missiles



Northrop-developed T-38 supersonic trainer. The T-38 is produced at Hawthorne, Calif., has many chromated parts. (Photo courtesy Norair, a division of Northrop Corp., Hawthorne, Calif., and Allied Research Products, Incorporated, Baltimore, Maryland.)

General Dynamics Corporation, San Diego, Calif.:

1. Vapor degrease. 180-190 deg. Fahrenheit.
2. Alkaline clean. 4-8 oz. Oakite 61-A per gallon of water. 170-190 deg. F. (Oakite 61-A is a product of Oakite Products, Inc., New York 6, N. Y.)
3. Rinse in tap water. 170-190 deg. F. 5-10 min.
4. Deoxidize. 10-12 oz. Oakite 34 per gallon of water. Room temperature. 3-10 min.
5. Rinse. Tap water, room temp. 5-10 min.
6. Chromate coat. 1-1.8 oz. Iridite 14-2/gal. water. (Figs. 1, 2) (Iridite 14-2 is a product of Allied Research Products, Inc., Baltimore, Md.) Room temp. 1-4 min.
7. Rinse in running tap water. Room temp. 3-5 min.
8. Hot-air dry-off. 150-190 deg. F.

All producers recognize the importance of rinsing and make provisions for removing one solution from a surface before treating in the next. At Hughes Aircraft Company, (El Segundo, Calif.), for example, products go through two rinses after alkaline cleaning, two after deoxidizing and three after chromate coating.

Most manufacturers have facilities for etching parts prior to deoxidizing, when this is required.

Some manufacturers have facilities for precleaning and deoxidizing heavily soiled parts before they enter the cycle shown above.

Equipment

Processing tanks are often quite large. At Norair Div. of Northrop Corporation, Hawthorne, Calif., the tanks are 26.5 feet long, 6.6 feet deep, 3.5 feet wide. At Douglas Aircraft, in El Segundo, Calif., the largest tanks hold 16,000 gallons each. Lockheed's tanks at Burbank, Calif. are up to 50 feet long.

Douglas has an interesting "merry-go-round" machine which processes smaller parts. It consists of a series of triangular tanks arranged to form a circle. A conveyor carries the parts through these tanks. Each unit (there are two) does everything from cleaning through conversion coating, drying and priming.

Process Controls

The usual chemical controls such as periodic determination of pH (1.5-2.0) and titration of the solution for hexavalent chrome are normally sufficient to keep the solutions in good operating condition.

Acceptance Tests

The primary acceptance test for chromate coatings in most plants is a visual check for appearance. A satisfactory coating is one which is golden and iridescent in appearance. Variation in color is not necessarily cause for rejection, however. Color is primarily an indication of the presence of a continuous coating, and continuity is more important than color matching.

Sometimes clear chromate coatings are applied. At Convair, a solution known as ARP No. 7 (product of Allied Research Products, Inc., Baltimore, Md.) detects the existence of a clear coating. A green spot appears on any surface that has been

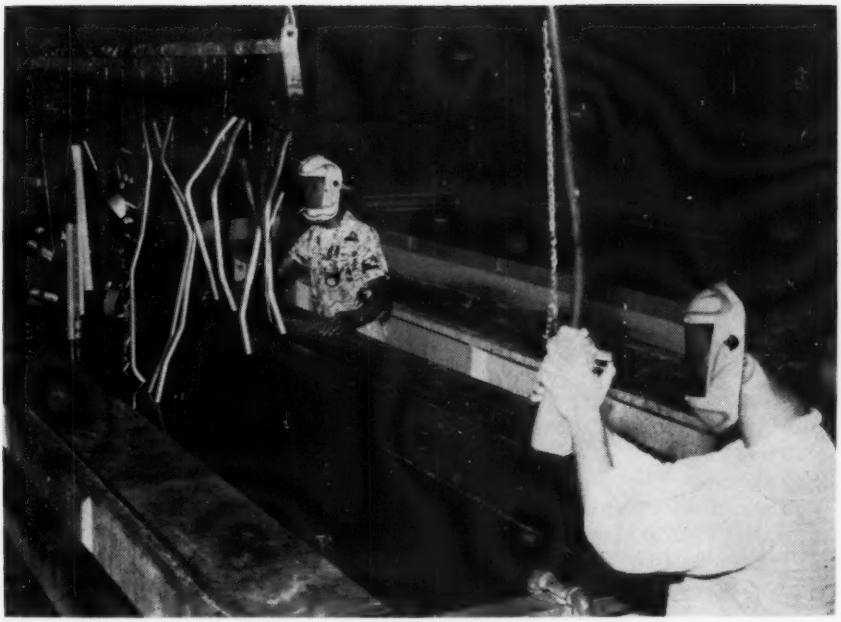


Fig. 1—Closeup of Iridite 14-2 tank for applying chromate coating to aluminum.

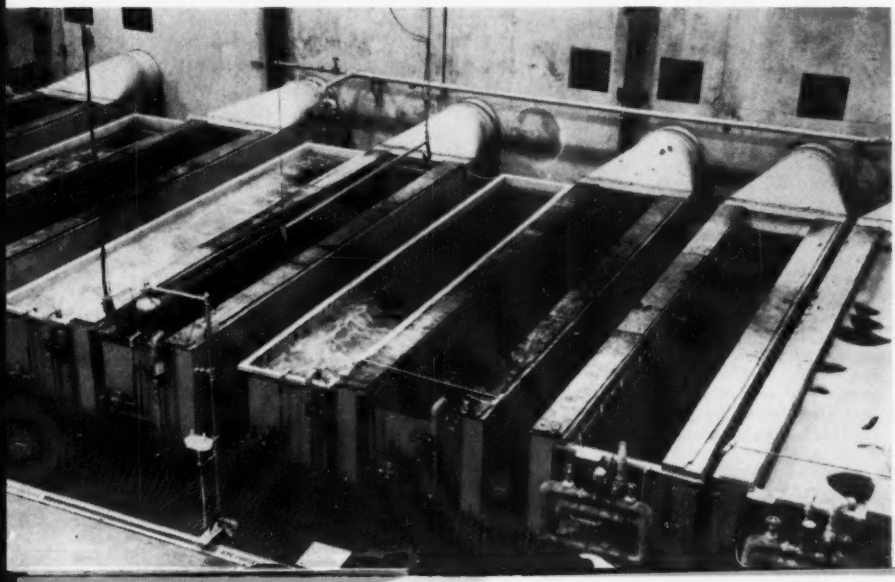


Fig. 2—Eight Iridite tanks at Convair (Astronautics) Division of General Dynamics Corporation in San Diego. Tanks hold 2600 gallons of solution and can process parts up to 10 feet in diameter. Tanks like these, for large parts, are typical of aircraft industry.

"Most of the manufacturers have some sort of adhesion test for painted, chromated parts."

coated when a drop of this solution is applied (Fig. 3).

Salt spray tests are standard. Government specs require 168 hours before appearance of white corrosion products. At Lockheed Aircraft, specifications state that the chromate coating must *remain intact* after 168 hours salt spray. Hughes Aircraft runs salt spray tests every three months, requiring 168 hours before corrosion on unpainted samples and 500 hours before failure of painted samples.

Adhesion

Most of the manufacturers have some sort of adhesion test for painted, chromated parts. At Norair Div. of Northrop Aviation, Hawthorne, Calif., technicians salt-spray test painted samples first, then dry the samples for 24 hours before testing for adhesion. This is done by drawing a knife edge across the painted surface at right angles to the surface. If the cut shows a fine, feathered edge down to bare metal and the paint film is difficult to remove at the edge of the cut, the part passes the test.

Recoating Damaged Areas

When parts are damaged in processing, a brush-on method is often used for applying a chromate coating to the damaged area. The procedure used for recoating at Convair-San Diego is typical:

1. Clean by brushing with toluene

Fig. 3—A spot test is made to detect the presence of colorless chromate films. Solution used in this test causes film to turn green, thus indicating that metal is protected. (Figs. 1, 2 and 3 courtesy Convair, a division of General Dynamics Corporation, San Diego, California, and Allied Research Products, Incorporated, Baltimore, Maryland.)

and wiping with clean cheese cloth.

2. Apply Deoxidine cleaner (a product of Amchem Products, Inc., Ambler, Pa.) for 5 min. on areas to be refinished.
3. Rinse in stream of tap water.
4. While surface is still wet, apply Iridite 14-2 with a brush for 15 min. Extend application area slightly beyond cleaned areas and keep area covered with chromate solution at all times.
5. Rinse in tap water.
6. Air dry.

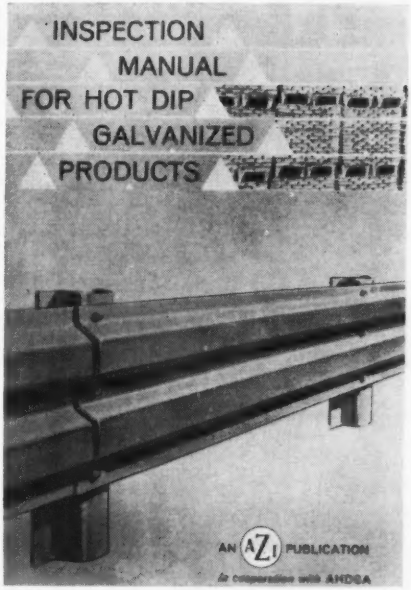
Norair Division of Northrop Aviation, Hawthorne, Calif., varies this procedure slightly. The chromate solution is allowed to dry without rinsing in order to avoid disturbing the newly formed coating.

Chromate coatings have been popular since World War II days. They have done and are doing a good job of protecting parts and improving paint adhesion. With a properly cleaned and deoxidized surface, and a chromating solution that is kept within limits on pH and hexavalent-chrome content, a coating is produced that markedly improves corrosion resistance and paint bonding.

★ ★ ★

Inspection Manual for Hot-Dip Galvanized Products. A 34-page book prepared in cooperation with the American Hot Dip Galvanizers Association, Inc. to help manufacturers achieve optimum corrosion protection from galvanized coatings. It describes factors governing inspection, properties, specification and purchasing of hot dip zinc coatings.

To provide optimum protection, specific standards in both the basis



metal and the method of applying the zinc coating must be observed. These include analysis of the ferrous metal, thickness and uniformity of the zinc coating, temperature and time of immersion into the zinc bath.

Comprehensively illustrated with photographs, charts, and graphs, the manual describes the galvanizing process, discussing such significant details as the metallurgical structure of zinc coatings, factors influencing adherence, effects of various conditions of the basis metal, etc.

A copy of "Inspection Manual for Hot Dip Galvanized Products" may be obtained free of charge by writing either American Zinc Institute, Inc., 292 Madison Avenue, New York 17, N. Y., or the American Hot Dip Galvanizers Association, Inc., 5225 Manning Place, N.W., Washington 16, D. C.

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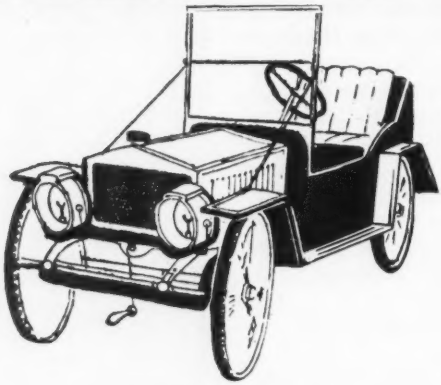

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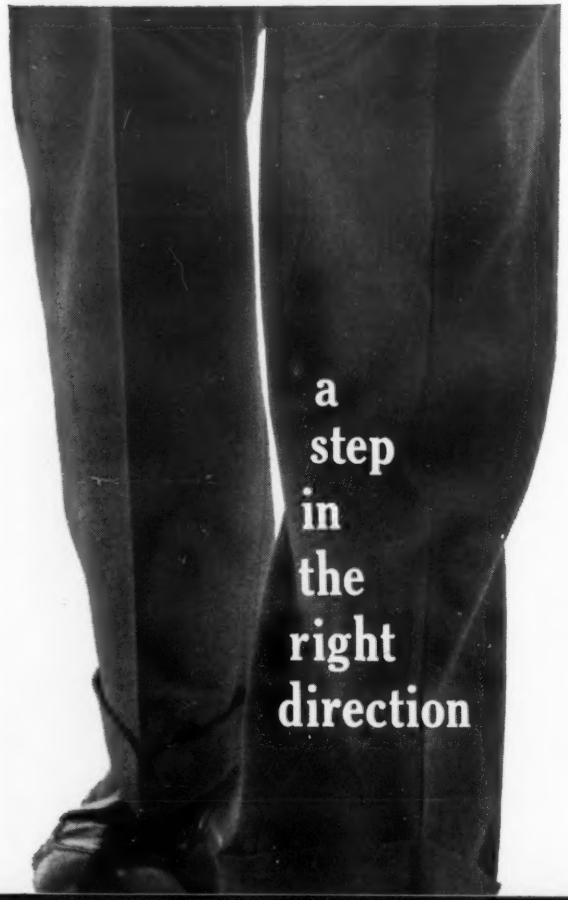

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SC Solvent #2	270	308	153	81	14.0	80	— 2	.8418	7.01	76%
SC Solvent #2-B	277	370	188	81	21.5	75	+12	.8388	6.99	68%
SC Solvent #3	356	400	204	135	64.0	72	+24	.872	7.26	69%
SC Solvent #28	329	379	193	122	51.0	73	+14	.8597	7.16	74%
SC Solvent #100	321	351	177	115	21.0	93.2	—37	.8708	7.25	96%
SC Solvent #150	369	412*	211*	152	98.0	91.8	—26	.8899	7.41	96%
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Testing Paint Films: Automatic Sprayer

You can't make valid comparisons of paint coatings unless the films are applied under identical conditions . . .

By ERIC H. COCKS
Spraymation, Inc.
Little Falls, N. J.

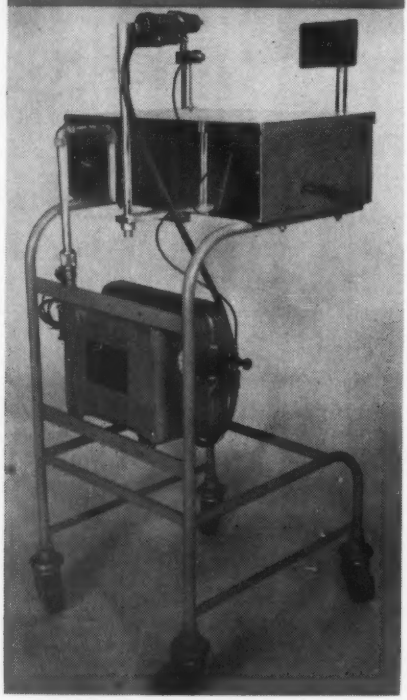

Fig. 1—Standard machine for automatically spraying test panels. Panel reciprocates automatically while gun is turned on and off automatically, producing comparable films.

Use of painted metal panels for testing and comparing finishes is common practice in the finishing industry. Both users and manufacturers of paint prepare panels that are usually 4 by 6 inches to 6 by 12 inches in size for experimental or quality-control purposes.

After painting, the panels are tested to determine how much resistance the finish has to abrasion, weather, corrosive agents, aging, and so on. The panels are used for comparing finishes and as records of production runs. Samples of new

Produces Uniformly Painted Panels

finishes are sent to prospective customers on these test panels.

Usually the paint is applied to the test panels by spraying, so that the test method will be similar to production application. If comparisons of finishes are to be valid, the finish on each panel must be of the same thickness. It must be prepared by methods as nearly identical as possible. Thus it's important that the following be kept uniform in spraying test panels:

- Distance from spray nozzle to panel.
- Traverse speed of spray gun.
- Trigger pull.
- Angular alignment between panels and gun.
- Air pressure.
- Paint temperature.
- Room temperature.

A quick look at these requirements shows that it's practically impossible to hand spray test panels and keep all of these factors the same. Thus a machine is used to eliminate the human element.

Basically this machine consists of an automatic traverse mechanism that carries panels past a spray gun.

The spray gun is mounted on a fixed support so that its angle and distance from the panel remains the same. Speed of traverse can be changed as desired.

To operate this unit, the operator starts the traverse mechanism and then triggers the gun for as many passes as are required.

This works fine with most finishes. But with certain pastel shades, polychromatic finishes, acrylics and metallics, it, too, has limitations.

For one thing, you can't just keep spraying wet coats of some of these new paints. To get good results, you have to make 20 or more passes in groups of four with flash-off periods of one or two minutes between each group.

Thus the operator instead of just triggering his gun enough times to paint his traversing panel, now has to trigger and then wait, trigger and then wait . . .

The operator also has to count the number of passes and keep track of them during the six or seven minutes it takes to paint a single panel. He has to use a stopwatch if

(continued)

". . . press the button and this machine does the job without further attention."

he wants flash-off times to be the same.

To relieve technicians of this tedious job, a new test-panel sprayer developed by Spraymation, Inc., has automatic traversing as well as automatic triggering and timing for flash-off periods. You merely press the button and this machine does the job without further attention.

The new machine's gun is controlled by a solenoid valve. A gun holder locks any spray gun in any position required. The gun will not spray unless the panel is in the proper position. At the end of the specified number of passes and flash-off periods, the machine automatically shuts off.

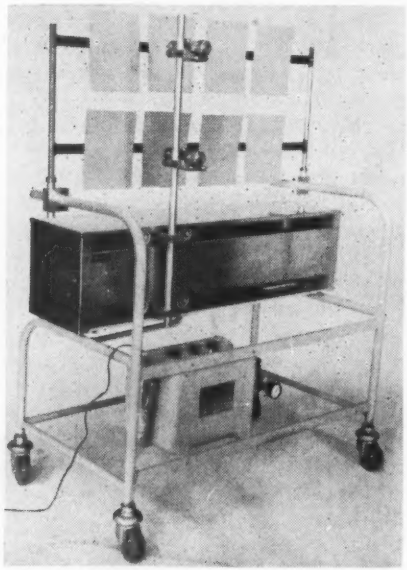

Fig. 2—Test panel sprayer for use where many duplicate panels must be sprayed. On this unit, the guns traverse while the panels remain at rest. (Photographs courtesy Spraymation, Incorporated, Little Falls, N. J.)

The unit is equipped with an agitator which prevents settling of metallics. To eliminate problems with fluid pressure, a siphon feed is used.

Manual switches are provided so that the machine can be used in the conventional manner without disturbing the automatic-cycle setting.

In order to eliminate air-flow variables, the panel is mounted so that it will be sprayed at exactly the center of the exhaust flow from a blower.

Thus it's now possible to prepare paint-test panels under uniform conditions and do it completely automatically under the proper conditions for almost any organic finish.

★ ★ ★

1961 Finishing Handbook and Directory. Published by Sawell Publications Ltd., 4 Ludgate Circus, London E.C.4. 536 pages.

A handbook for finishing operations plus a directory to British manufacturers of equipment and supplies.

The handbook contains articles on anodizing, electroplating, flock coating, marking, cleaning, polishing, paint applications, phosphatizing, vitreous enameling, other topics of interest to finishers.

The directory contains list of equipment and materials, trade and brand names, associations and technical organizations.

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If you can use advantages like these, put LECTRITE 'Z' to work. Get in touch with your Wyandotte representative, today. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California, and Atlanta, Georgia. Offices in principal cities.*

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Hot Spray Speeds Production, Improves Quality

Manufacturer of vending machines heats his acrylic lacquer, gets a film 1½ mils thick in a single coat . . .

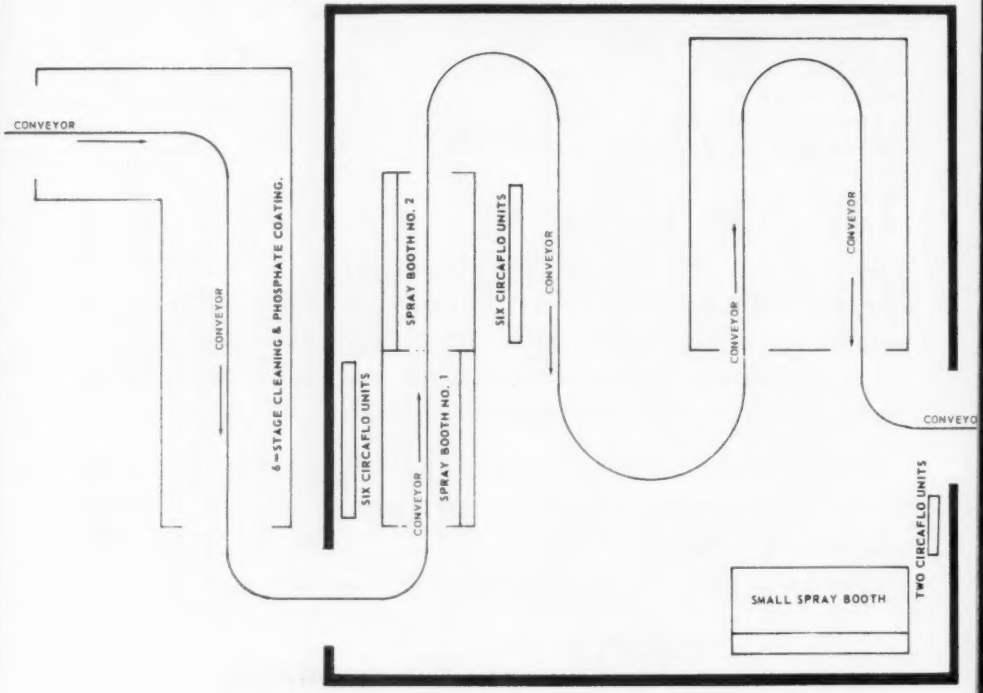

Fig. 1—Overhead conveyor carries parts through washing machine, spray booths, bake oven.

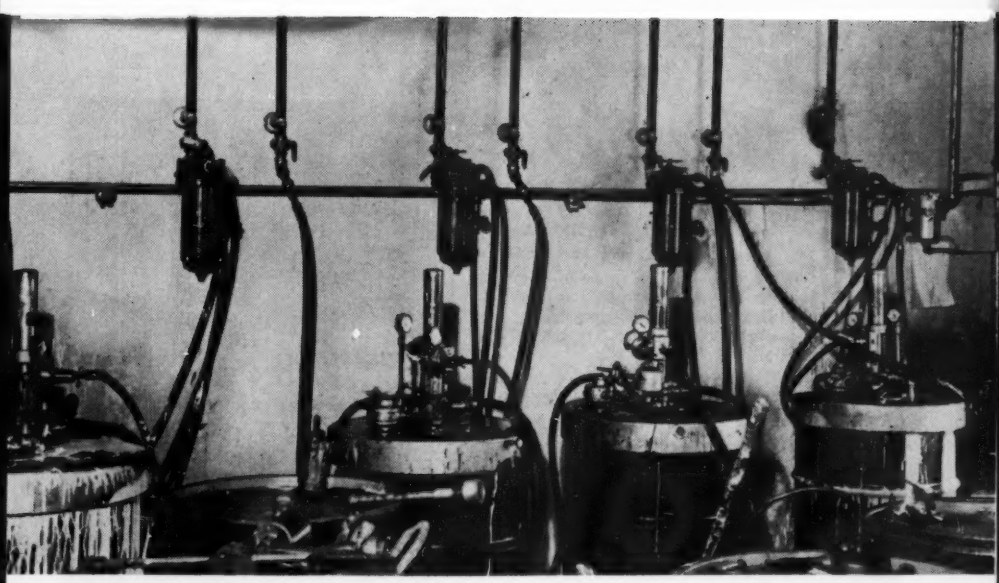

Fig. 2—Central paint-supply room has Spee-Flo circulating pumps to handle basic colors. Each of the four colors of paint is piped directly to the two water wash spray booths.

A Florida manufacturer of vending machines is hot spray painting his products to produce an attractive finish 1½ mils thick (dry) in a single trip through the spray booth. He estimates that heating the paint is saving approximately 40 per cent in materials.

The recently expanded finishing department where this is being done is in the plant of Continental Vending Machine Corp., Miami Division, Miami, Florida.

An overhead conveyor (Fig. 1) takes cabinets and other parts for vending machines through cleaning, painting and baking, as follows:

1. Clean and phosphatize in L-shaped, six-stage washing machine.
a) Clean in Amchem Ridolene No. 62 ¼ oz./gal. 140-160 deg. F. 1½ min.
b) Water rinse. Room temp. 45 seconds.
c) Water rinse. Room temp. 45 seconds.
d) Phosphatize in Amchem Granodine No. 1100 iron phosphate. 45 lb./100 gal. 150-160 deg. F. 1½ min.
e) Water rinse. Room temp. 45 seconds.
f) Dilute chromic acid rinse. Deoxylyte 40. Room temp. 45 seconds.

2. Paint in two water-wash spray booths. One operator paints one side, the other operator, the opposite side. Four different colors of acrylic lacquer are pumped to the spray booths from 55-gallon drums in a storage room (Fig. 2) approximately 250 feet from the spray booths. Four Spee-Flo Circaflo paint heaters keep the temperature of the paint entering the spray guns at 160 deg. F. (Fig. 3). Two other paint heaters in each booth heat paint taken from pressure pots that

(continued)

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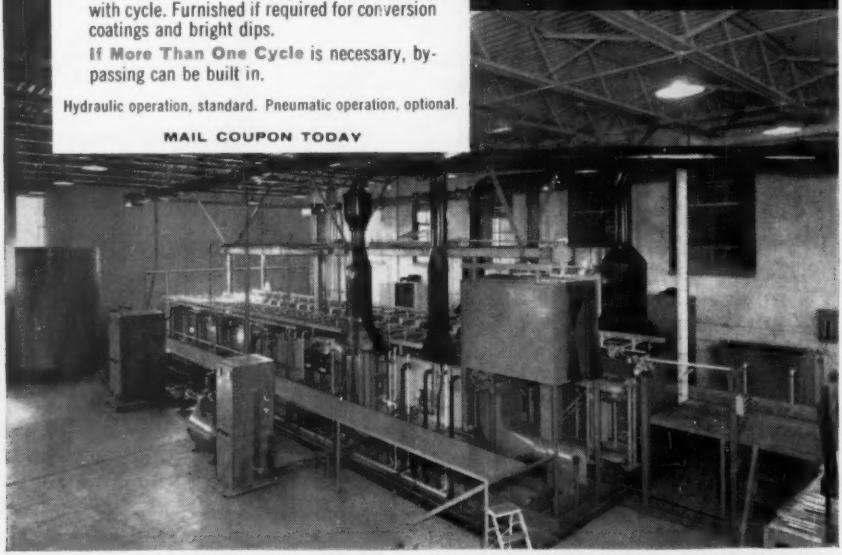

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contain any special colors required. A third smaller spray booth also equipped with hot-spray apparatus is used for painting specialty items not handled on the regular production line.

3. Bake the paint for 14 minutes in an oven heated to 400 deg. F.

4. Inspect and unload.

Process engineers at Continental say the paint heaters consistently maintain the temperature set, require little maintenance, are easy to clean for color change. Reduction of orange peel, runs and sags are other advantages of hot spray, the Miami vending machine maker says.

Design Considerations for Applying Reinforced Plastics in the Corrosive Environments of the Process Industries, by Fred W. Arndt of Heil Process Equipment Corporation, presents a table for estimating the degradation of tensile strength in reinforced polyester laminates (downward from 9000 p.s.i.) under 14 practical service and production conditions, and illustrates its use in the mechanical design of (1) a hanging 20-inch fume duct, (2) flanges for same, and (3) a jacketed vessel for storing hot pickling solutions. Destruction tests verified the design method.

Copies are available from William T. Scott, Atlas Powder Co., Wilmington 99, Del.

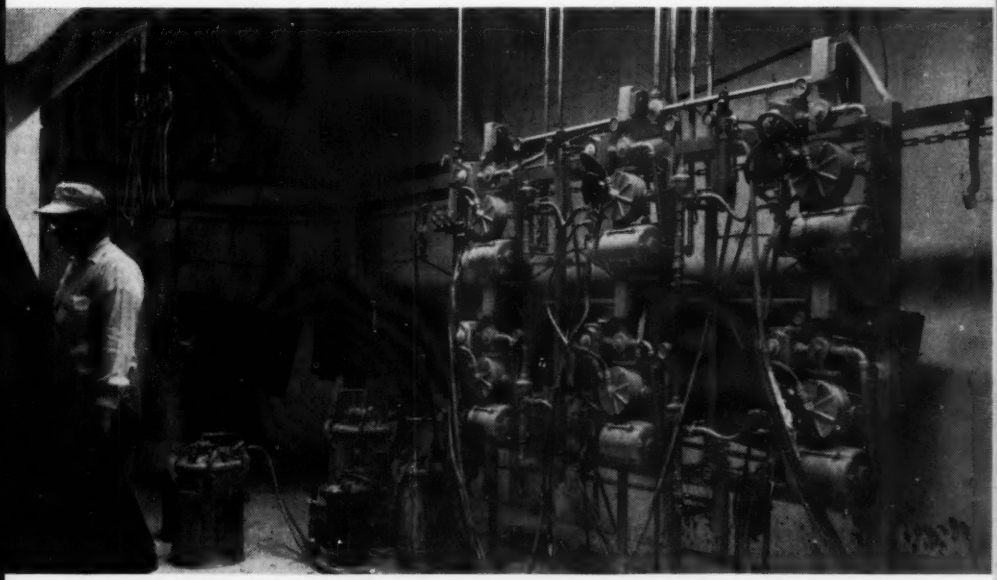

Fig. 3—One of the two main spray booths. Four of the six paint heaters are for paint coming from the central supply, other two heat paint taken from pressure pots kept in the booth to supply small-volume colors. (Photos courtesy Spee-Flo Co., Houston, Tex.)

Gold Coating Fights Heat in Scout Research Rocket

Gold is helping to conquer the heat problem posed by space-age rockets.

Chance Vought Aircraft, assembler of the National Aeronautics and Space Administration's "Scout" research rocket, finishes more than 100 square feet of the rocket's skin with gold.

The precious metal is useful as a coating for aero-space vehicles because of its high heat reflectivity, relatively high melting point, low spectral emissivity and excellent corrosion resistance. It will resist melting up to nearly 2,000 deg. F.

The fourth stage of the Scout rocket has its inner skin gold coated to protect the scientific instruments from extreme heat caused by atmospheric friction. Since this finish is

(continued)

Scout gets gold protective finish

Until recently, caskets were moved on pallets and air drying was the practice. In the modernized plant at Aurora, Ind., now, with automatic conveyors and driQuik ceramic type electric infra-red ovens: 1. the complete finishing operation, from base coat to final lacquer, takes much less space; 2. production was increased 20% with less labor cost; 3. quality was improved. Only driQuik, with its accurate temperature control (to within 1 degree of desired heat by turning a knob) can give the correct temperatures for each of the different coatings.

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For complete working details, write on your company letterhead for Bulletin 191, Levelmax operating manual. Write Federated Metals Division, American Smelting and Refining Company, 120 Broadway, New York 5, N. Y., or call your nearest Federated sales office.

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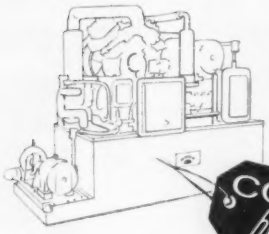

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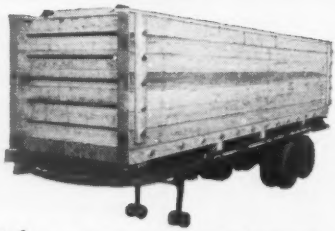

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only 0.00001 of an inch thick, it costs only 60 cents a square-foot.

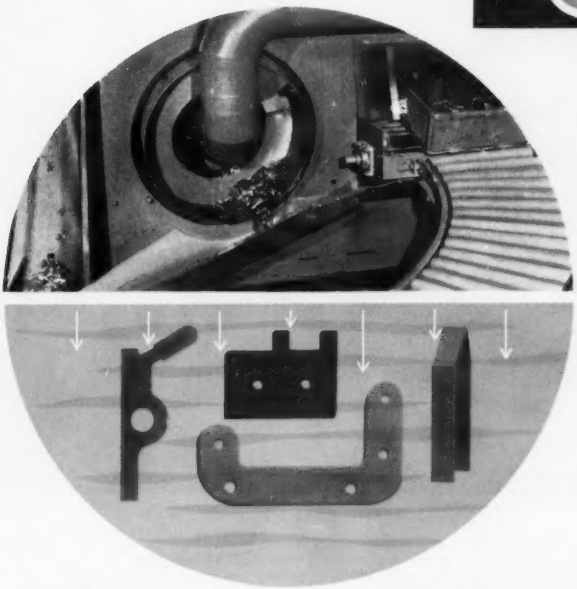
Because the parts of the rocket requiring gold plating are so large, the usual electrolytic and vapor-deposition methods were not practicable. Chance Vought went back to a process used centuries ago to apply gold coatings. A gold resinate soluble in pine oil is sprayed on the part to be coated. The part then is baked in an oven at 375 deg. F. for 15 minutes. The coating turns to a pure gold in a second hour-long bake at 700 deg. Fahrenheit.

Besides its use in keeping space vehicles cooler, gold has another value in helping to avoid detection. Some antiaircraft weapons use infrared-seeking devices to locate aircraft targets. For this reason, keeping infrared emissivity as low as possible reduces possibility of detection.

By preventing structural heating through use of gold coatings on the internal skin structure or shroud, the heat radiated from the engine to a plane's structure can be reduced substantially, lessening the danger of infrared detection. A sizeable reduction in costly shroud weight may also be realized by use of a gold coating in the engine area.

In the case of the Scout missile, the principal problem was to protect the payload of instruments contained in the fourth stage from excessive skin temperatures caused by the high speeds of flight into space. Vought applied a highly emissive ceramic coating to the rocket's external skin to radiate friction heat back into the atmosphere. On the inside, the gold coating reduces heat radiation to the payload.

Pennsalt System Approach for better cleaning



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By turning to Pennsalt for both cleaning equipment and chemicals, the General Electric Low Voltage Switchgear Department brought new efficiency and product quality to in-plant cleaning of precision parts used in protective relays for electrical systems.

The machine. A combination Pennsalt drum-belt washer: small parts are automatically soaked, washed, rinsed and dried in the drum; larger parts are spray washed, rinsed and dried in tote trays on the belt.

The materials. Recommended by our lab evaluation of actual soils: Cleaner 30, alkaline material for fast action by spray or soak; and emulsion type Cleaner EC-54, non-evaporating at high temperatures.

Pennsalt System Approach. Because we make both chemicals and equipment, we can team them for top quality and lowest costs . . . in cleaning, phosphating, drawing lubrication and pickling.

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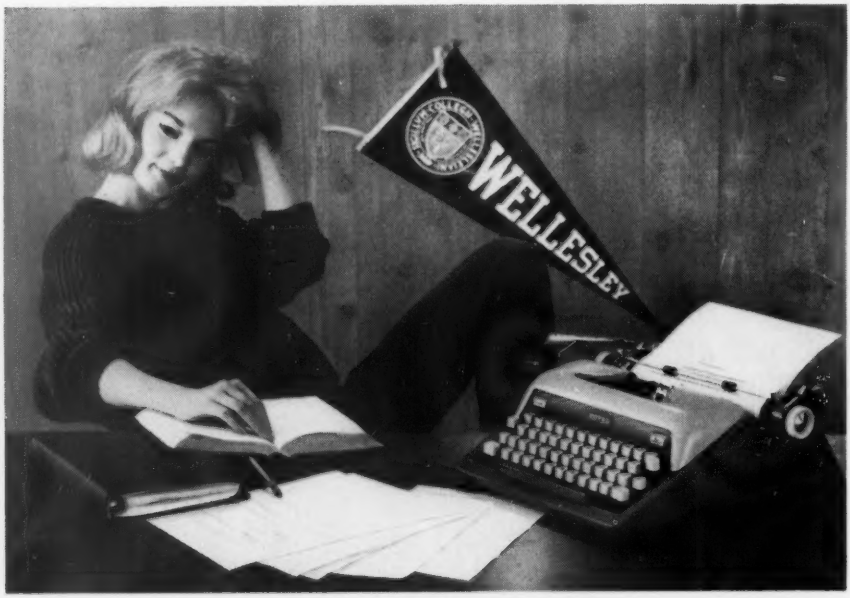

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Royal McBee Installs 2 Meaker Automatic Plating Machines to Process Over 150 Royal Portable Typewriter Parts

Much of the taken-for-granted reliability for which ROYAL PORTABLE TYPEWRITERS are famous is due to the precision plating of over 150 components done on 2 MEAKER AUTOMATIC PLATING MACHINES. One unit takes care of the entire production requirements for chrome plating — plus an equal amount of nickel plated parts. The second MEAKER plates over 100 different components in bright or "black" zinc.

Reports Mr. C. H. Farrington, Production Manager of Royal McBee's new "showplace" plant in Springfield, Mo.: "We particularly like the custom designed automatic programming on our MEAKER. We plate nickel and chrome or just nickel on one unit, and either bright or "black" zinc on the other, in any sequence desired."

Since 1899, THE MEAKER COMPANY has designed and built automatic equipment for continuous or batch-type metal finishing for large or limited production requirements. Our experience has shown that many medium size shops can pay for a MEAKER AUTOMATIC in labor savings and consistent quality production alone.

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Industrial Wastes Committee Reports on Research Developments

It's hydrocyanic acid and not the complex cyanide that kills fish. This fact was reported by C. M. Tarzwell at a recent meeting of researchers concerned with waste and water usage.

Dr. D. Gardner Foulke

About 65 scientists and engineers met at the Robert A. Taft Sanitary Engineering Center in Cincinnati to hear the reports, according to Dr. D. Gardner Foulke, research director of Sel-Rex Corporation, and vice chairman of the National Technical Task Committee on Industrial Wastes (NTTCIW).

Other technical findings of interest to the plating industry were reported during the meeting, in addition to Mr. Tarzwell's findings, which he reported in his paper, "Determination of Water Quality Requirements for Protection of Aquatic Life."

G. N. McDermott reported that copper cyanide reduced the efficiency of activated sludge treatment more than copper sulfate. This work is almost completed, after which the effect of nickel will be studied. Hexavalent chromium, short of massive doses, is unlikely to harm the oper-

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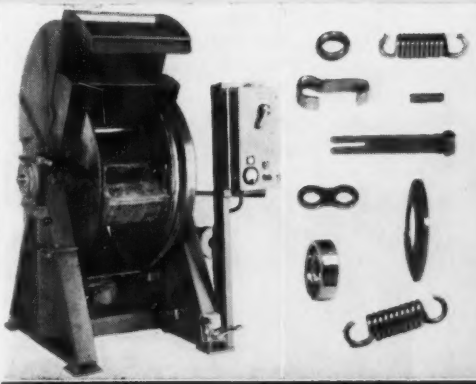
MICRO-INCH FINISH
OR DE-BURR
IN MINUTES
INSTEAD OF HOURS



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ation of a sound sewage treatment plant. The retention of the chromium is primarily in the activated sludge solids and a digestor with 3.5 per cent chromium in the sludge solids performed satisfactorily.

The NTTCIW in a brief business session passed resolutions 1) recommending a continuing study of the application of stabilization ponds to sewage and industrial waste treatment, 2) reaffirming past support of the need for increased research and 3) recommending consideration of permissive legislation permitting one-year tax write-off of the cost of industrial waste disposal installations.

★ ★ ★

Method Developed for Vinyl-Lining Steel Pipe

An economical method for applying seamless, corrosion-resistant vinyl lining to interior walls of steel pipe has been developed by Lithcote Corporation, Melrose Park, Illinois.

A special coating unit applies a vinyl plastisol coating to the interior walls of pipe ranging from 3 inches to 36 inches in diameter and in lengths up to 60 feet. The plastisol lining thus applied is from 1/16 to ⅛-inch thick. It is heat fused to the pipe in a special oven.

The plastisols used in the process are formulated by Michigan Chrome & Chemical Company, Detroit, and are based on Geon vinyl ma-

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A new bright nickel process with high leveling properties, high throwing power, ease of control, excellent ductility. May be used with agitated or still bath processes.

A bright barrel process, it may be used in hot barrel solutions or in room temperature baths with equal effectiveness. Simple to maintain and control, it produces highly uniform, bright deposits.

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This acid copper process has high throwing power, eliminates rough grainy deposits and "treeing" while promoting smooth, hard deposits of high ductility at rapid speeds.

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terials manufactured by B. F. Goodrich Chemical Company, Cleveland.

The plastisol lining is resistant to a large variety of chemicals, both acid and alkaline, at temperatures up to 180 deg. F.

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New Electrolytic Machining Process Shapes Parts in Minutes

The toughest alloys can be shaped in as little as one-tenth the time taken by conventional machine tools using an electrolytic machining process developed by Battelle Memorial Institute. Research for this project was supported by the Steel Improvement and Forge Company, Cleveland.

Metal is removed without arcs, sparks, or high temperatures by passing direct current between the workpiece and an electrolyte. The current removes electrons from the workpiece, converting the surface atoms into positively charged ions that dissolve into the electrolyte. This process' effectiveness is not dependent on the hardness of the metal; thus, it offers a solution to the problem of machining higher-strength metals.

To produce a part, rough forging or piece of metal stock (anode) is placed between shaped electrodes (cathode) and electrolyte is pumped under pressure into the space between the electrodes and the workpiece. As the electric current dissolves the workpiece to the desired shape, the electrodes are moved in simultaneously.

The electrolytic unit has machined rough-forged jet turbine blades to

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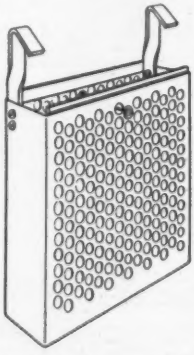

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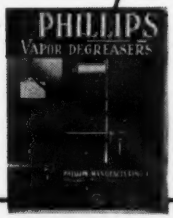

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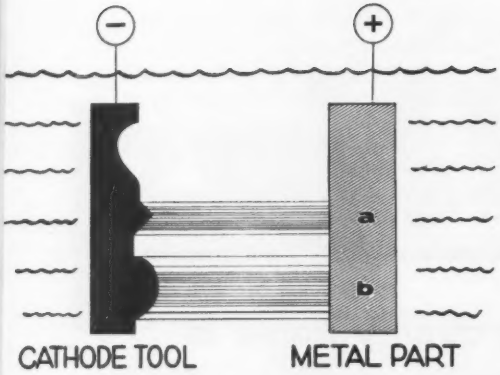


BEGINNING OF ELECTROLYTIC MACHINING PROCESS. Shaped cathode causes current density to be greatest at points a and b, and thus metal-removal rate is highest in these areas. Removal rate is proportional to current density and distance from cathode.

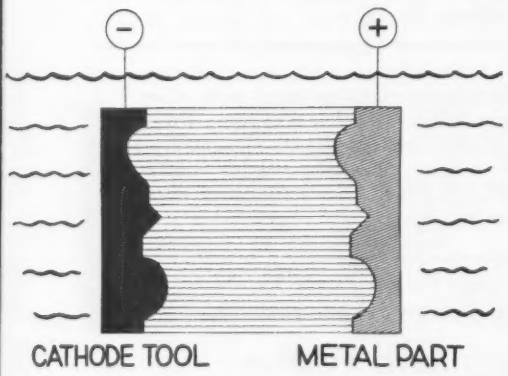
0.003-inch tolerances in 5 to 10 minutes—an operation which took from 1 to 2 hours to perform by grinding. In addition to shaping parts, other types of units can be used to sink die cavities. In 50 minutes cavities have been produced which previously required 7 to 10 hours of machining time. They also can drill round and irregularly shaped holes in alloys that cannot be penetrated by conventional drills. For some applications the process' big advantage is not the time saved but the absence of mechanical damage to the surface of the workpiece.

Because there is no tool pressure on the workpiece, thin sections can be shaped without deformation and lightweight machines and clamping systems can be used. Also, the shaping process produces no metallurgical change on the surface of the workpiece. Conventional machining does.

The development of the electrolytic machining process is the result of over two-and-a-half years of work by a Battelle research team which included Dr. Charles L. Faust, chief of electrochemical research at the Institute; Dr. John A. Gurklis; and John E. Clifford.

According to Dr. Faust, the Battelle-developed process differs from others which use the electrolytic metal removal principle in that: 1) it can produce complete parts in addition to sinking cavities, 2) it uses no rotating cutting wheels, 3) power is supplied through a simple rectifier instead of complex electronic circuits.

Current requirements for the electrolytic machining process range up to 1500 amperes per square inch of workpiece at 3 to 12 volts, to achieve a penetration rate of 0.05 to 0.01 inch per minute. For most operations, however, a 100-500 ampere current is sufficient. The shaped electrodes, which are not subject to wear, can be made of any electrically conductive material. The electrolytes, selected according to the metal to be machined, are solutions of readily available commercial chemicals.



END RESULT of electrolytic machining is part shaped like a mold of the cathode tool.

Your Carborundum Barrel Finishing Specialist can help you put your metal finishing operations on a profit basis. He has successfully introduced barrel finishing to many plants, large and small. He has proved its value for a variety of manufacturing processes, including stamping, forging, sand mold and die casting, machining and others. He knows how to make a correct on-the-job analysis and can recommend the procedure best suited to your own cost and finish requirements. Let him demonstrate how the **Carbotrol 7** Process can finish your parts less expensively and faster than by any other method. Phone your local Carborundum distributor or district office.

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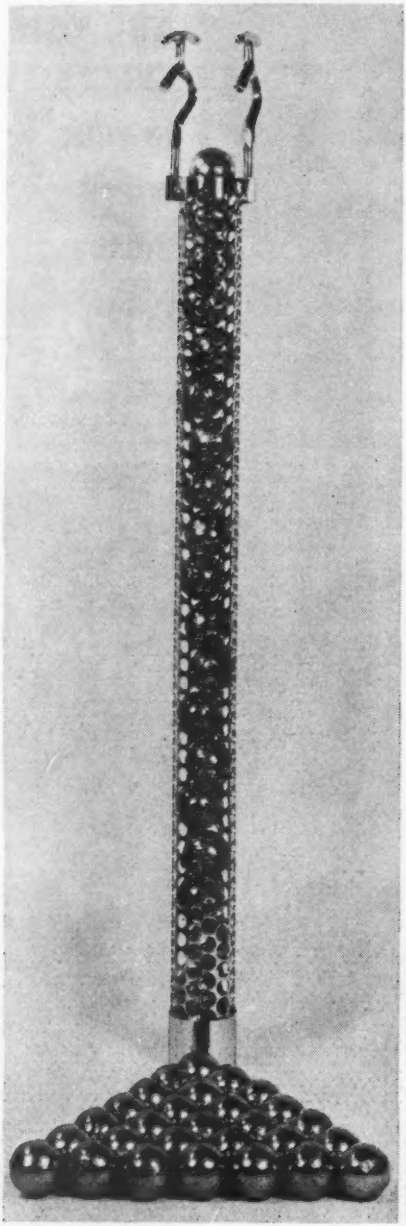

Improved Nickel Plating with Ball Anodes

Ball nickel anodes in a titanium basket eliminate scrap problem, remelt, replacement . . .

By **CHARLES T. WALKER**
Univertical Corporation

Fig. 1—"Beehive type" nickel anode. Balls are approximately 2 inches in diameter. Basket is made of commercially pure titanium.

You can make replacement of nickel anodes a much easier job by using ball nickel anodes in a titanium basket like that shown in Fig. 1.

Instead of plating with a solid nickel anode until it's corroded to a spear like that in Fig. 2 and then stopping the operation to replace the anode, you merely feed more balls of nickel into the basket as the balls in solution corrode.

In this way you also eliminate production of scrap anodes, remelt and recovery of metal. Deposition is more uniform, since anode area is kept fairly constant, rather than varying as the anode is corroded.

"Fringe benefits" include reduction of downtime for replacement of anodes and the fact that floating anode bags are eliminated.

Titanium is used for making the basket because of its unusual chemical and electrical properties. This rather inert metal will not corrode in a nickel plating solution, thus the basket does not wear out or require periodic replacement. And since the basket itself is not dissolved, it throws no foreign metal ions into the bath.

Commercially pure titanium at plating voltage does not conduct current to the solution. It permits flow of current only to the metal anodes. Life of a titanium basket is estimated to be about 10 years. Titanium is not recommended for use in fluoborate plating solutions, however.

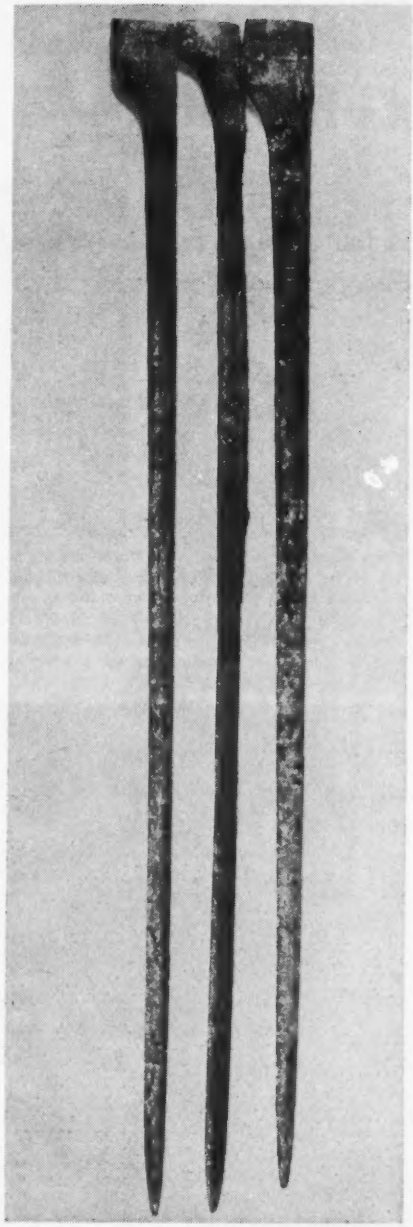

Fig. 2—Conventional nickel anodes corrode until they look like this. Weight at this point is only 10 to 40 per cent of original weight, replacement is necessary. (Photos courtesy Univertical Corporation, Detroit 27, Mich.)

Photos from Boston A.E.S. Convention

A few glimpses of the 48th annual meeting of the American Electroplaters' Society as seen by the PF camera.

Reported by **GERARD H. POLL, JR.,** Associate Editor

***A.E.S. OFFICERS AND DIGNITARIES** assembled on the rostrum at the Statler-Hilton in Boston for June 19th opening session. Simon D. Strauss, keynote speaker, is at the speaker's stand. A vice president of American Smelting & Refining Co., Mr. Strauss said that a position of dominance as a supplier does not necessarily lead to monopolistic practices. American Zinc Institute president Strauss cited primary lead as an example to prove that competition from other materials and industrial progress prevent charging "uneconomic prices," even if one or two suppliers control the market.*

WHAT'S NEWS IN ENJAY RESINS FOR SURFACE COATINGS

Alkyd Melamine
After 500 Hours
Salt Spray

Epoxy Ester
After 700 Hours
Salt Spray

Buton 200
After 700 Hours
Salt Spray

BUTON® 200 Resin offers better corrosion resistance—saves up to 1/3 the cost

In a recent series of salt spray tests, Buton 200 Resin outperformed epoxy ester and alkyd melamine formulations. All samples were automotive primer formulations with equivalent pigmentation. Test results? The Buton based primer had the lowest creep of all three. Impact testing also revealed that Buton-based primers had good adhesion, flexibility and impact resistance. By selecting Buton 200 Resin, you can save up to ⅓ on metal primers. Samples and a booklet on Buton Resins for metal primers may be obtained by writing to 15 West 51st Street, New York 19, N. Y.

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

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LOUIS V. GAGNON, Enthone, Inc., presides at opening session. At left are Dr. W. Andrew Wesley, International Nickel Co., Inc., New York, N. Y., president of A.E.S.; and Lt. Gov. of Massachusetts, Edward F. McLaughlin. At right are keynote speaker Strauss and Chet Borlet, Grand Rapids Brass Co., Grand Rapids, Mich., first vice president of A.E.S.

FIRMLY ENTRENCHED at head of the line of eager first registrants is Herberth E. Head (far left) Chrysler Corp., Detroit, a past president of A.E.S. Total registration: over 1200.

ART DU ROSE (left) of Harshaw Chemical Co., Cleveland, waits in registration line beside Du Pont Electrochemicals representatives Penn Lindsay (center) and Harry Benner.

EAST AND WEST met here as Frank Tirendi, Patent Button Company, Waterbury, Conn., and C. Scott Sterrett, Bendix Corporation, Kansas City, posed for camera.

BUSY MAN at 48th Annual A.E.S. Convention was Manson Glover of Glover Coating Co., Inc., Malden, Mass. (right). He's talking to (left to right) Paul Glab, Northwestern Plating Co., Chicago, R. Scott Modjeska, Scientific Control Laboratories, Inc., Chicago, and Convention Reporter Mrs. Florence Marquardt, Milwaukee. Messrs. Glab and Modjeska cooperated with Simon P. Gary, also of Scientific Control Laboratories, (not shown) in preparing a paper which won this year's A.E.S. Bronze Medal Award.

THIS FOURSOME includes (left to right) Bob Teply and Bernie Olson, both of Remington Rand Univac, St. Paul, Minn., Al Benning of Harshaw Chemical Co., Cleveland, and Mel Green, Armalite Co., Ltd., Toronto. Quite a few Canadians attended the Boston meeting.

DR. ABNER BRENNER, National Bureau of Standards, Washington, D. C. (center) was chosen winner of Scientific Achievement Award. A.E.S. President Dr. W. Andrew Wesley applauds as Dr. Brenner accepts congratulations from Convention Chairman Louis V. Gagnon. Dr. Brenner will deliver William Blum Lecture at '62 Convention in Milwaukee.

M.F.S.A.'s new officers and trustees pose with Rudy J. Hazucha, Clinton Co. (far left), who installed supplier organization's new leaders. Standing with Mr. Hazucha (left to right) are J. M. Davidson, Pennsalt Chemicals Corp., J. A. Cairns, Allied Research Products, Inc., J. E. Trumbour, "Metal Finishing," King Ruhly, Michigan Chrome & Chemical Co., Dr. H. L. Kellner, Lea Manufacturing Co., J. G. Carrique, Alloycraft, Ltd., R. M. Norton, Hanson-Van Winkle-Munning Co., S. M. Goble, Federated Metals Div., ASARCO, and R. E. Belke, Belke Mfg. Co. Ezra A. Blount, PRODUCTS FINISHING, M.F.S.A. executive secretary, is seated in left foreground. Not present for photo: F. P. Green, Crown Rheostat & Supply Co., R. C. Trees, Udylite Corp., H. D. McLeese, Metal & Thermit Corp.

49th Annual A.E.S. Convention • June 25-28, 1962
Milwaukee, Wisconsin
See you there!

DR. CHARLES L. FAUST, of Battelle Memorial Institute, Columbus, Ohio, accepts plaque and 500-dollar honorarium from A.E.S. President Wesley after delivering William Blum Lecture.

See pages 152-154 for complete details on election of new officers for A.E.S., N.A.M.F. and M.F.S.A. Watch future issues of PRODUCTS FINISHING for more news and views from the Boston Convention.

WIVES OF CONVENTIONEERS enjoyed luncheon given by Udylite Corporation on Monday. (PRODUCTS FINISHING Staff Photographs.)

SPOTLIGHTING Finishing Progress

Long-chain polar substances increase fatigue strength . . .

Effect of Organic Compounds on Metal Fatigue

Coatings of certain polar organic compounds on specimens of steel, magnesium, and copper-beryllium alloys markedly increase fatigue strength, according to recent National Bureau of Standards experiments. The compounds found most beneficial have a carbon chain of at least 12 with a polar group at one end. Apparently the polar group attaches to a metal surface in such a way that a tightly packed monomolecular film is formed which acts as a barrier to water and oxygen molecules.

The National Bureau of Standards has recently investigated the effects of polar and non-polar organic compounds on metal fatigue, in a program sponsored by the National Aeronautics and Space Administration. The experiments showed that coatings of long-chain polar substances greatly increase the fatigue strengths of steel, magnesium, and copper-beryllium alloys.

On metal surfaces the polar compounds apparently form tightly packed monolayers that act as a barrier to water and oxygen molecules.[1] These results are expected to have practical application in extending the useful life of certain metals and alloys.

It is well known that environment influences metal fatigue. Even the mild corrosion that occurs when fatigue tests are run in a laboratory atmosphere may affect test results.[2]

A number of studies have shown that certain types of organic compounds afford protection against corrosion under normal unstressed conditions.[3] Because these compounds readily lend themselves to mechanism studies, H. E. Frankel, J. A. Bennett, and W. L. Holshouser of the Bureau staff undertook the investigation to ascertain their effect on fatigue behavior.

Cylindrical specimens were machined in which the longitudinal radius of curvature was held constant at 3.5 inches. Minimum diameter of the reduced section was 0.310 inch for magnesium, and 0.250 inch for the other alloys. All of the experiments were conducted on rotating-beam fatigue-testing machines of the

(continued on page 82)

Amer-Plate® has the 1-2 punch that whips tank lining problems

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A technically trained, industry-wise Amer-Plate Applicator has the skill and experience to help you solve every tank lining problem. His knowledge and efficiency will help keep your costs down, your production up.

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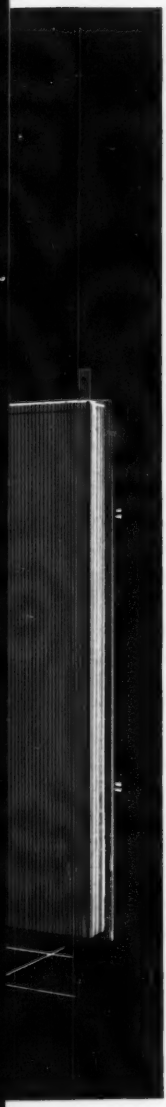

DeVilbiss batch-type production ovens are your answer when you need fast, uniform baking, drying, dehydrating, preheating, or curing. They come knocked down (with piece-marked components) or assembled in sizes and capacities to give you a "custom" oven at a standard price. Choose from gas, electric, or steam heat. All conform to accepted safety standards. Features include: prewired and prepiped control panel; powered exhaust; exclusive interlocking, insulated oven panels. Extra-heavy construction, even heat distribution, ability to accept capacity loads result in exceptional dependability. Whether you need packaged batch ovens—or custom designs of any size or type—DeVilbiss' engineering ability and experience assure you of the best oven for your purpose. Details are yours for the writing. The DeVilbiss Company, Toledo 1, Ohio. Also Barrie, Ontario; London, England; São Paulo, Brazil. Offices in principal cities.

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TABLE 1

Substance	Formula	Type
n-Hexadecane	$CH_3(CH_2)_{14}\ CH_3$	Non-polar
Xylene	$C_6H_4(CH_3)_2$	"
Benzene	C_6H_6	"
Octyl Alcohol	$CH_3(CH_2)_6\ CH_2OH$	Polar
Dodecyl Alcohol	$CH_3(CH_2)_{11}\ OH$	"
Dodecylamine	$CH_3(CH_2)_{11}\ NH_2$	"
Octadecylamine	$CH_3(CH_2)_{17}\ NH_2$	"

R. R. Moore type, which apply pure bending moments to the test section.

Specimens of six different alloys were tested to fracture under one of the following conditions: cleaned and dry; coated with or immersed in an organic substance; immersed in water, either in the coated or uncoated condition. The organic substances used in the experiments are shown in Table 1.

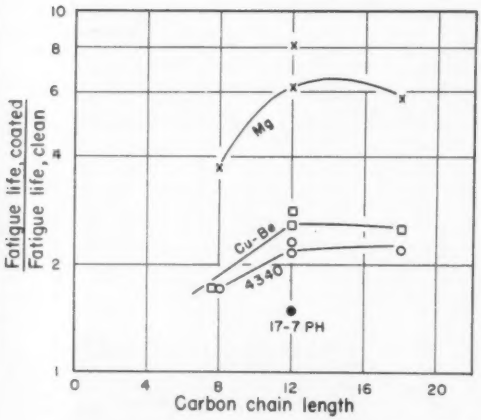

Fig. 1—Effect of polar organic compounds on the median fatigue life of four alloys: magnesium, copper-beryllium, 4340 steel, and 17-7 PH stainless steel. For the first three materials, the upper value at a chain length of 12 represents dodecyl alcohol, while the lower value represents dodecyl amine.

The water and non-polar liquids either had no significant effect or caused a decrease in the fatigue life of the specimens. The polar organic compounds, however, caused an increase of over 600 per cent in the fatigue life of the magnesium alloy, stressed at 12,500 p.s.i.; an increase of approximately 250 per cent in the copper-beryllium alloy, stressed at 50,000 p.s.i.; and an increase of approximately 200 per cent in the steel alloy, stressed at 100,000 p.s.i.

These compounds had little, if any, beneficial effect on the other three alloys, titanium, aluminum, and stainless steel, probably because of the strongly adherent oxide films that form on these materials.

The results showed no appreciable difference between the specimens that were immersed in the polar substances and those that were merely coated with them. Coating the specimens with one of the substances, dodecyl alcohol, and then testing in a tap-water environment resulted in

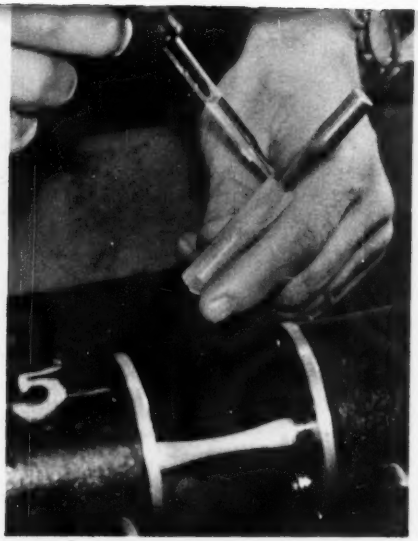

Fig. 2—A magnesium specimen is coated with dodecyl alcohol before it is fatigue tested. An uncoated specimen, used as a control, may be noted in the fatigue-testing machine (foreground). (Illustrations courtesy Nat'l Bureau of Standards, Washington, D.C.)

as much improvement as had been obtained testing in air.

Compounds having chain lengths of 8, 12, and 18 carbon atoms were studied. Of these substances, those having 12-carbon chains apparently gave optimum conditions. The type of polar group is not as important as the number of carbon atoms in each molecule.

REFERENCES

1. For further technical details, see *The Effect of Oleophobic Films on Metal Fatigue*, by H. E. Frankel, J. A. Bennett, and W. L. Holshouser, "J. Research NBS," Sec. C (in press).
2. *Some Further Experiments on Atmospheric Action in Fatigue*, by H. J. Gough and D. G. Sopwith, "J. Inst. of Metals," 56, 55 (1935).
3. *Hydrophobic Monolayers Adsorbed from Aqueous Solutions*, by E. G. Shafrin and W. A. Zisman, "J. Colloid Sci.," 4, 571 (1949).

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Manufacturer: Universal Vibrating Screen Co., 1745 Deane Blvd., Racine, Wisconsin.

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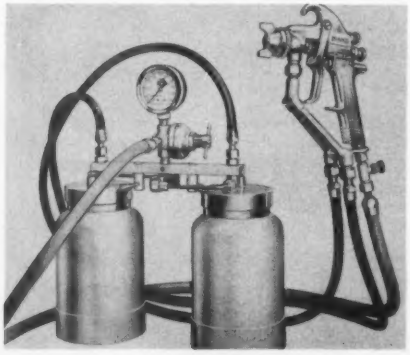
★ ★ ★

Spatter Sprayer

A spatter-spray unit designed for two-color spray painting consists of a Binks Model 19 spray gun connected to two paint cups, an air-adjusting valve, and the necessary hoses and fittings.



Spatter sprayer: for two-color applications

Different-colors of paints are contained in each cup. Both colors flow in separate hoses to the spray gun, where they are mixed just prior to being sprayed. A special double-fluid gun connection has been designed to fit on the spray gun.

Manufacturer: Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago.

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High-Purity Gold Plate for Electronics Applications

Temperex HD process for electroplating gold is said to produce deposits which meet or surpass specifications written by manufacturers of transistors and other electronic equipment.

The deposits produced are 99.99 per cent pure; hardness is 75 Knoop. Electroforms made by electrodepositing from Temperex bath can be twisted into a cork-screw shape without fracturing. Machinability, soldering and welding properties are good, the manufacturer says.

Thick deposits are possible. Electroforms to 30 thousandths of an inch are easily produced under commercial operating conditions. Deposits withstand 550 deg. C. for 10 minutes, 300 deg. C. for 96 hours.

Manufacturer: Sel-Rex Corporation, Nutley, N. J.

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Emulsion Cleaners 62 and 75 remove heavy oil films, solid dirt and buffing compounds at room temperature. Only a plain steel tank is required, eliminating costly vapor degreasing equipment.

Emulsion Cleaners 62 and 75 are safe for use on all metals and are ideal for a wide variety of jobs:

- Cleaning steel and other metals before plating, phosphating and blackening.
- Basket or barrel cleaning of parts.
- Cleaning deeply recessed work preceding electrolytic cleaning.
- Removing grease from machines, floors, automobile engines.
- Air filter cleaning.
- Tin-reflow oil removal.
- Emulsion Cleaner 75 also removes buffing compounds.

These two cleaners, available as liquid or liquid concentrate, are fast working and economical. They are particularly effective for use where wet processing follows cleaning, as in blackening, phosphating and plating. Alkali cleaning time is shortened and the life of alkali solutions is lengthened.

For complete information on how Enthone Emulsion Cleaners can save time and money in your shop, write to: Enthone, Inc., 442 Elm Street, New Haven 8, Conn.

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Wet Blaster

A manually operated wet blast cabinet with optional work handling device has been introduced by the Pressure Blast Manufacturing Company, Inc.

The wet blast cabinet has been designated as Model A-45 and the work handling device as the Rollo-Table.

Measuring 50 inches wide by 40 inches deep by 75 inches high, those areas of the wet blast cabinet in contact with abrasive slurry are fabricated of stainless steel.

Work-loading doors provide 30-inch by 30-inch access to the interior of the cabinet, which has internal working area measuring 50 inches wide by 36 inches deep by 40 inches high.

Model A-45 has a heavy duty blower for mist evacuation, large viewing window with fluorescent lighting and window wash device, elliptical arm-ports with arm rests, knee-operated controls and special 2-bay, caster-mounted settling basin to aid in changing abrasive. The hopper, where abrasive and water are contained, has air

Wet-Blast Cabinet with Rollo-Table

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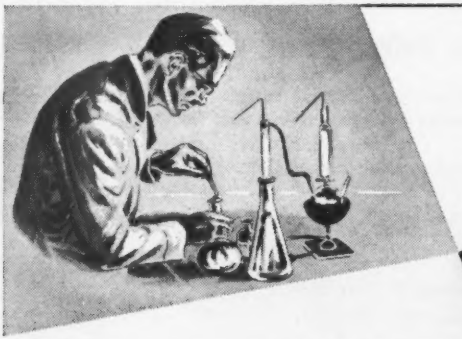

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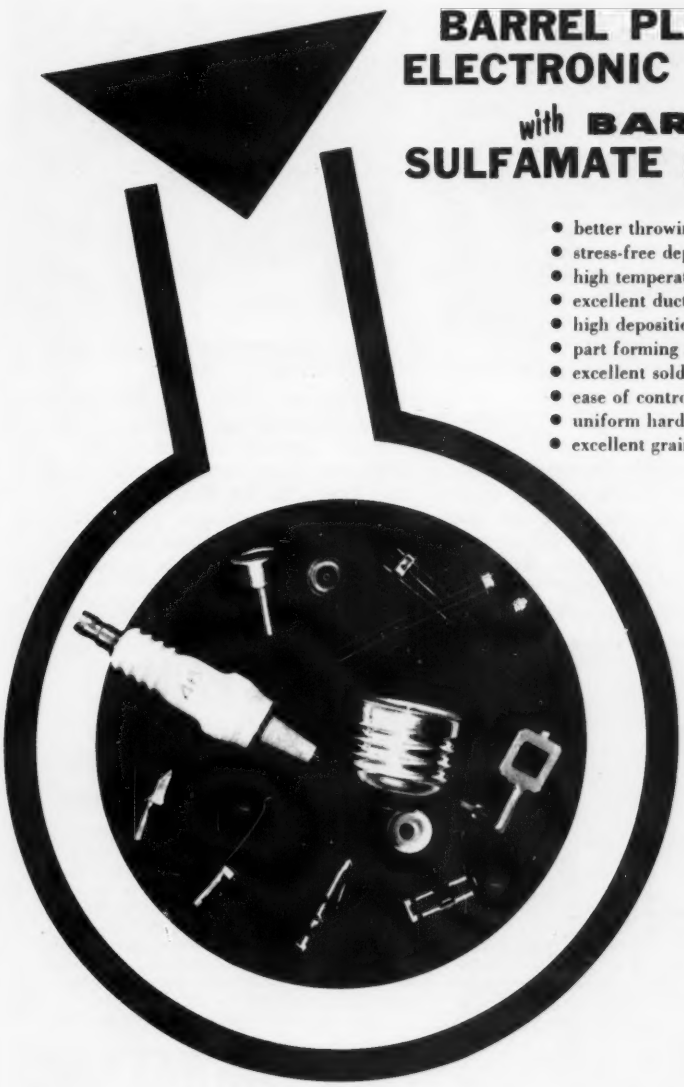

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agitation for suspending the abrasive.

The Rollo Table is mounted to the left of the cabinet. It has tracks which run into the cabinet and a plastisol-coated expanded metal rotary table.

Work to be finished is placed on the rotary table and manually pushed into the cabinet. During the blasting operation the operator may use one hand to rotate the table while the other hand is used to manipulate the blast gun. At the completion of blasting, the table is rolled out of the cabinet, over a rinse area, and washed free of residual abrasive.

Manufacturer: Pressure Blast Mfg. Co., Manchester, Conn.

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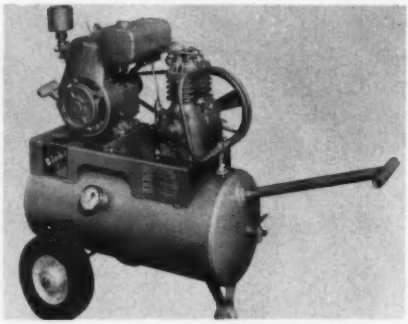
★ ★ ★

Tank-Mounted Air Compressors

Tank-mounted portable air compressors work continuously on medium-production jobs, are big enough to handle high production intermittent-type spray gun and air tool applications. They can also be used to supply inlet air to airless sprayers.



Binks Tank-Mounted Air Compressor

Four models are available: two with one-horsepower electric motors, and two with 2½-horsepower gasoline engines. All models provide pressures of 70-80 p.s.i., and have 15-gallon reserve tanks. All have two-cylinder,

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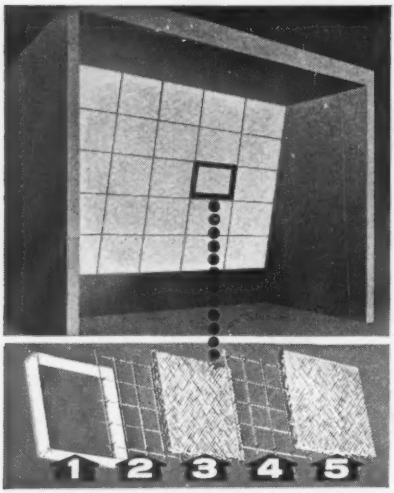

A Paint Arrestor module consists of a Holding Frame (1), two Snap-in Grids (2 and 4), two Paint Arrestors (3 and 5). Loaded Paint Arrestors are simply replaced as necessary. And, they're also ideal for air-borne ink, mist, dye, frit, etc.

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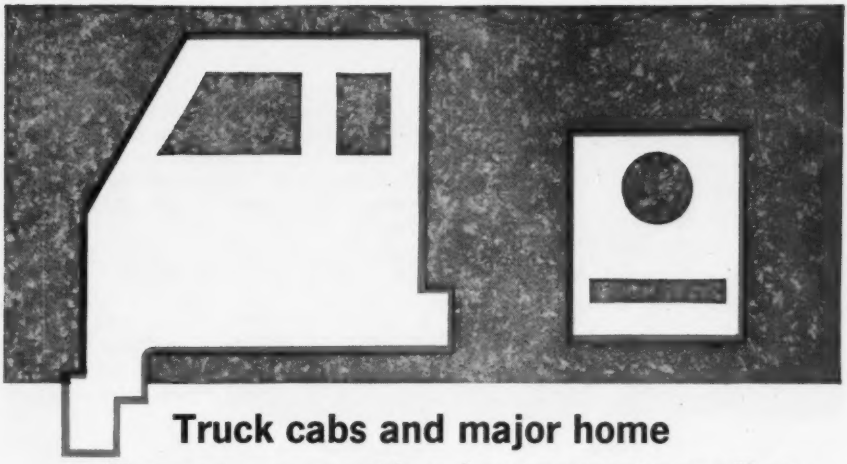

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Our customers include manufacturers of heavy duty trucks, home washing machines and dryers, refrigerators and freezers. For them and for others, we have developed improved techniques for production phosphating of metal surfaces to provide a micro-crystalline paint base that does not crack, chip or dust off in handling.

These manufacturers combine the advantages of this corrosion resistant base with modern paint systems to make their products attractive and durable. Along their production lines, they often realize additional practical advantages.

An example: Using our improved chemicals for production rustproofing, customers can weld metal after it has been phosphated. This makes it possible to have uniform rustproof protection on every square inch of the most complicated welded product assemblies.

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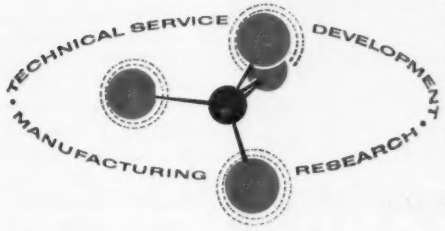

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single-stage air cooled compressors.

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Manufacturer: Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago.

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High-Throw Bright-Nickel Plating Process

M & T Bright Nickel 30-W, a Watts-type bath that can be used with either air or mechanical agitation to produce brilliant deposits with outstanding chromium receptivity.

Users report easy maintenance for the bath in commercial plating operations. Stability of addition agents is assured at pH of 3.5 to 4.5, even under varying operating conditions.

Nickel sulfate, nickel chloride, boric acid and organic addition agents make up the bath solution. Rolled or cast 99 plus per cent carbon-type nickel anodes are recommended. Plating bath composition depends on cathode current density, type and finish of basis metal, deposit thickness and article to be plated.

Two bath make-up purification procedures may be used. One requires a high-pH nickel carbonate treatment while the other involves electrolysis.

Organic addition agents include M&T Agent A-3, which contains a stable brightening material for mirror-bright, ductile deposits. Agent A-5 also acts to promote maximum

(continued)

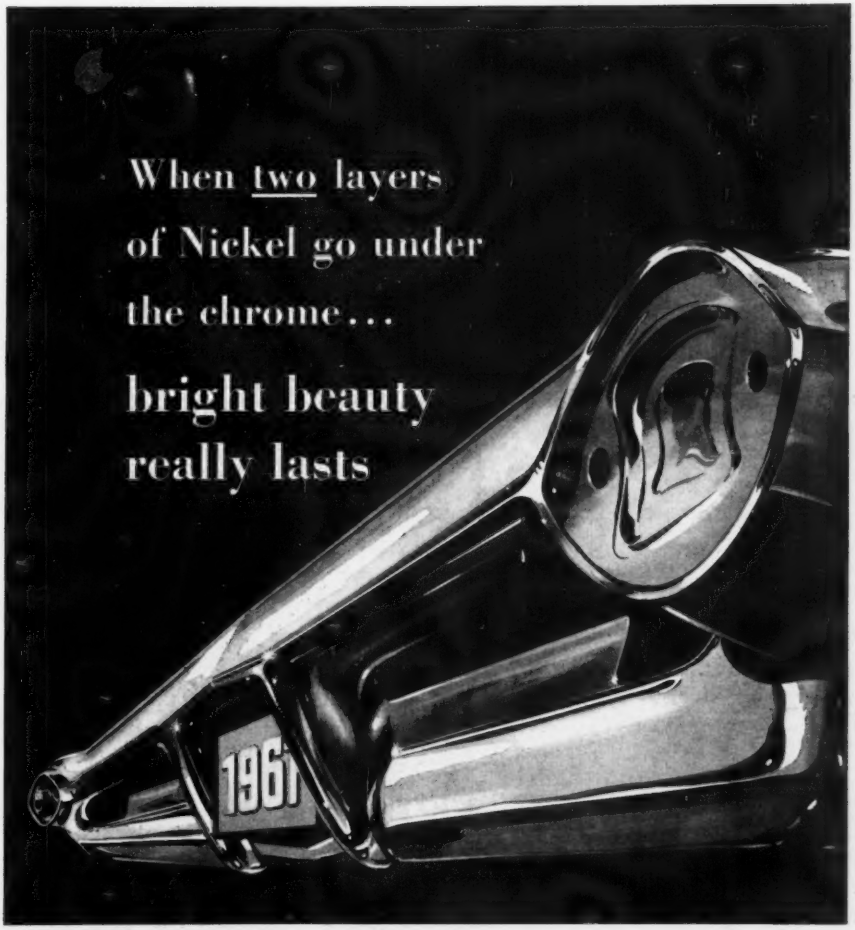
GOLD SICON® withstands 500°F.

Gold SICON protects the grill and grill pouch of this attractive Quaker space heater under temperatures of over 500°F., without peeling, flaking, powdering or discoloring. *And it will retain its bright appearance indefinitely!* Do as Heil-Quaker did. Test SICON . . . up to 1000°F. for Sicon-Aluminum or black . . . from 500° to 650°F. in gold or other decorative colors. Write for Sicon brochure and free sample offer . . . today! Write to Dept. G-6.

SICON, protects and preserves—wherever there is heat.

Sicon® Hi-Temperature finish by MIDLAND Industrial Finishes Company Waukegan, Illinois

For more data circle 358 on Postpaid Card



That's right! Not one, but *two* layers of Nickel go under the thin chromium overlay. The first thick layer—of semi-bright Nickel—evens out surface imperfections, reduces . . . in many cases eliminates . . . high polishing and buffing costs. The second layer—of fully bright Nickel—adds brilliance and further increases protection against corrosion. No worry about harsh cleaning compounds harming the finish here!

Double-Layer Nickel Plating for lasting beauty. It's the double layer of Nickel that makes possible the lasting quality of the finish. This thick, durable combination provides outstanding resistance to corrosion, abrasion and wear. There's a world of sales appeal in the lustrous beauty of Double-Layer Nickel Plating, and a world of durability in its performance.

If your need is for a coating system for rugged performance, consider the advantages of Double-Layer Nickel Plating. We'll be glad to send you a copy of *Decorative Plated Coatings of Improved Durability*. Just drop a line to:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street INCO New York 5, N. Y.

Inco Nickel

Nickel makes plating perform better longer

For more data circle 359 on Postpaid Card

WRITE WIRE OR CALL COLLECT!

Unbelievably Fine Buys on Guaranteed Rebuilt Plating, Polishing and Spray Painting Equipment

PLATING BARRELS
6 — Daniels #3
3 — Lasalco 36 x 12 cylinder
4 — H-VW-M 24 x 12
7 — Udylite 36 x 14

FILTERS
10 — Industrial, Alsop, Sethco — all sizes, all makes — nickel and cyanide solutions

TUMBLING BARRELS
2 — Globe barrels
2 — Roto-Finish — DW-36-2 Rubber
1 — Roto-Finish DW-22-36-1

POLISHING MACHINES
2 — Acme A2
3 — Acme B10
2 — Divine Model VM-10
15 — Holland 5 H.P. — 10 H.P.
4 — Gardener 5 H.P. — 7½ H.P.
6 — Divine Idlers

RHEOSTATS — all sizes
2 — Crown — 12 x 12

MISCELLANEOUS
14 — Detrex and Blakeslee Degreasers
25 — Blowers and motors — multivane (fume) paddle wheel

TANKS
200 — All Sizes — all linings

RECTIFIERS
2 — Green Selenium 5000 A, 6 V, 440/3/60
2 — Green Selenium 3000 A, 6 V, 440/3/60
4 — 1500 amp., 6 volt DC for 220/3/60 AC Remote Control

PLATING GENERATORS
1 — 5000/2500 ampere, 6/12 Volt 40° Chandeysson, Synch. 4
2 — 7500/3750 ampere, 6/12 Volt Chandeysson, Synch. 40°
2 — 6000/3000 ampere, 6/12 Volt, Electric Products and Chandeysson, Synch.
1 — 6000/3000 ampere, 9/18 Volt, 40°C Chandeysson, Synch. Exciter-in-head.
2 — 5000/2500 ampere, 6/12 Volt, 25°C Chandeysson, Synch.

AND MORE . . . MUCH MORE

H&S EQUIPMENT SALES CO.
A Division of J. Holland & Sons, Inc.
Keap St.—Telephone EVergreen 7-2526
Brooklyn, New York

For more data circle 360 on Postpaid Card

New Products . . .

brilliance and ductility, while M&T addition agents Y-11 and Y-15 inhibit pitting.

Manufacturer: Metal & Thermit Corporation, General Offices, Rahway, New Jersey.

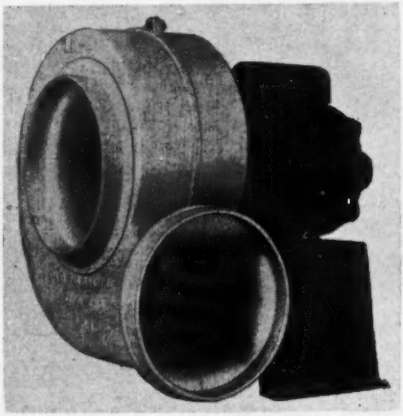
For more data circle **6** on Postpaid Card

★ ★ ★

High-Volume Blower Operates Quietly

Centrifugal, "squirrel-cage" blowers with free-air discharge ratings up to 1400 c.f.m. and quiet operation. Cast aluminum housings, steel impellers, non-overloading design, compactness with either pedestal or direct mounting, permanently lubricated ball bearing motors.

Uses include exhaust of dust, dirt, smoke, odors, steam or gases from hoods and vats; ventilation of washrooms, offices and boiler rooms. The LM Blower is also used for cooling.



Centrifugal Blower: 1400 c.f.m., quietly

Manufacturer: Cincinnati Fan & Ventilator Co., 3574 Montgomery Rd., Cincinnati 7, Ohio.

For more data circle **7** on Postpaid Card

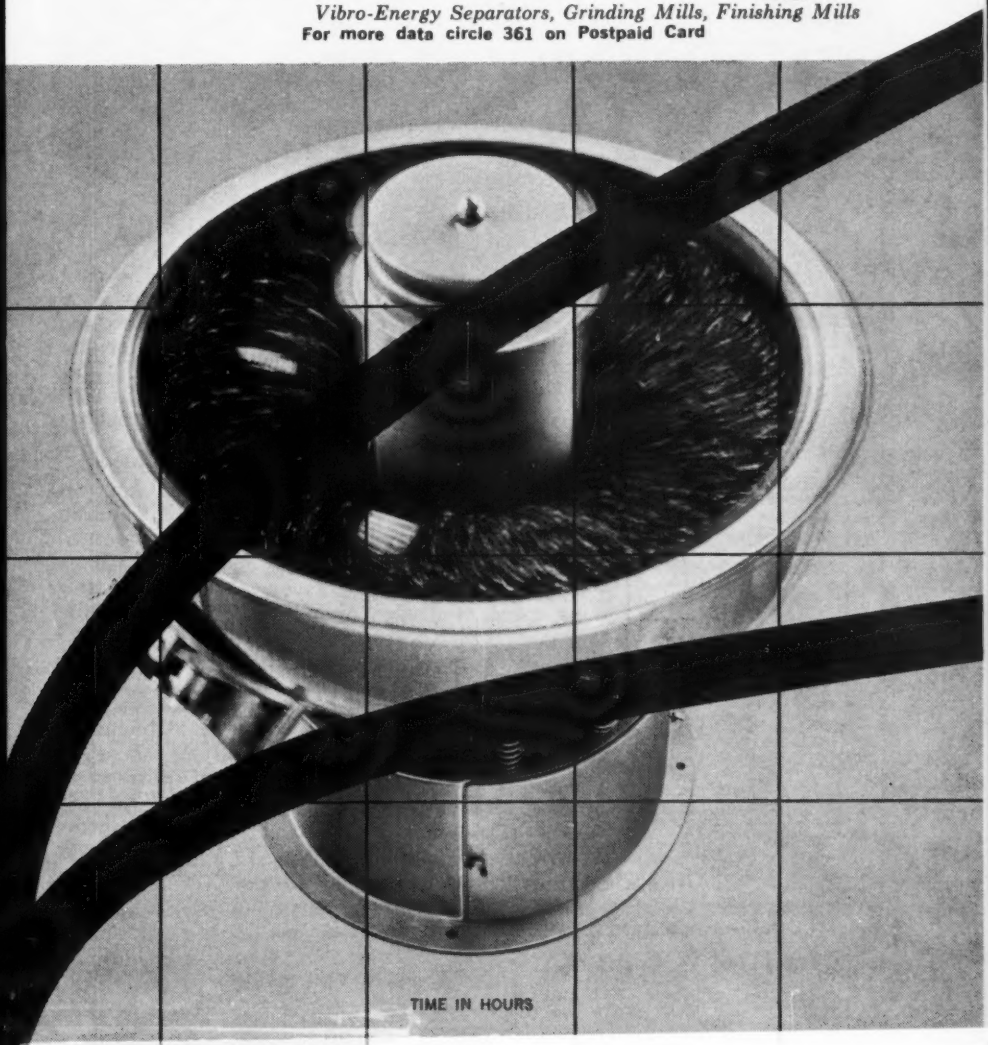
faster finishing...by far!

The new SWECO Vibro-Energy* Finishing Mill does in 35 to 165 minutes what ordinary vibratory equipment *takes 5 hours to do.* Results of 8 impartial comparison tests (weight loss in grams and RMS improvement, on cast iron, hard steel, stainless and aluminum) prove SWECO produces the same finish *in 45% to 88% less time.* Charts of all 8 tests are included in a new, illustrated technical treatise that will be mailed on your request. It describes in detail the superior performance of high-frequency, three-dimensional vibration in finishing metal, ceramic and plastic parts. For a copy, write SOUTHWESTERN ENGINEERING COMPANY, 4800 Santa Fe, Los Angeles 58, Dept. 81427

SWECO
*TM SEC

Vibro-Energy Separators, Grinding Mills, Finishing Mills

For more data circle 361 on Postpaid Card



Latex Resin for Corrosion-Resistant Primers

A synthetic latex for use in primers that are applied to prevent corrosion of automobile bodies and other metal surfaces.

Said to be the first of its type, the latex is specifically for use as an air-dry metal primer.

In addition to automotive applications, the latex is suggested for use as a primer on structural steel, farm and other implements and vending machines.

Tests show the latex to have excellent resistance to water and salt spray. Metals coated with the air-dry primer have shown no traces of corrosion even after 100 hours of continuous exposure to salt spray. Water immersion tests have produced equally good results.

The primer can be applied easily by brush, dip or spray, and can be top-coated with conventional air dry or baked enamel finishes.

Other advantages of the material, called Pliolite Resin Latex 481-X, are excellent adhesion to steel before and after water immersion and good shelf aging of pigmented primers.

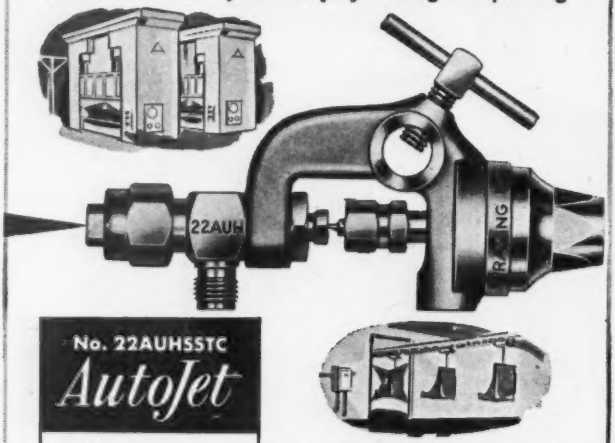
Because no solvents are present in the latex, fire hazards are practically eliminated.

The synthetic is described as a resinous, modified styrene-butadiene latex which will dry to a clear, non-tacky film with high uncured tensile strength.

Manufacturer of the resin: Goodyear Chemical Div., Akron 16, Ohio.

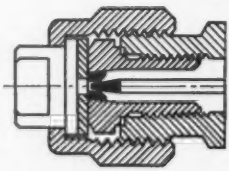
For more data circle 8 on Postpaid Card

for AUTOMATIC hydraulic spray coating and painting



No. 22AUH5STC
AutoJet

with
TUNGSTEN CARBIDE
valve seat and needle
•
STAINLESS STEEL
body and cap
•
TEFLON packings

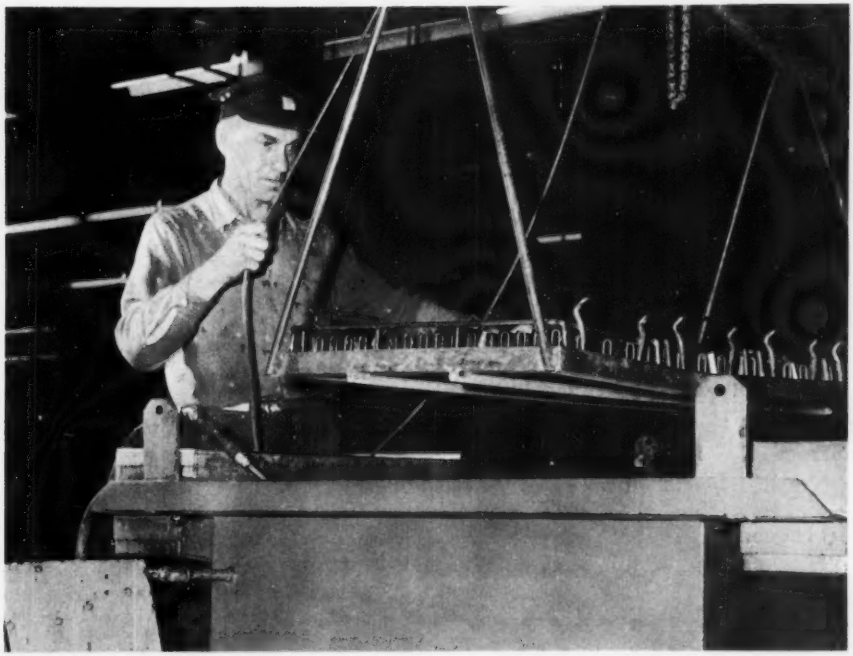


for dependable, trouble-free performance—operates automatically at any required cycling speed, controlled by air actuated shut-off valve. Paint or coatings atomized by hydraulic pressure alone at pressures from 400 to 2,000 psi. Complete choice of interchangeable orifice tips in all spray patterns, capacities and materials.

SPRAYING SYSTEMS CO.
3229 Randolph Street • Bellwood, Illinois

FOR INFORMATION WRITE FOR BULLETIN 96

For more data circle 362 on Postpaid Card



WHERE HOOKER TRICHLORETHYLENE RAISED QUALITY AND LOWERED COSTS

Approximately a year ago, the Metals Processing Division, Curtiss-Wright Corporation, began using high-quality Hooker NIALK® TRICHLORETHYLENE to degrease jet engine blades. Before this, maintaining purity in the baths required frequent cleanouts. Chemical costs were high.

Immediate results with Nialk showed a better cleaning job and tighter quality control. Down time for degreaser maintenance has been substantially reduced.

The exceptional cleaning results now obtained permit inspectors to discover possible flaws more easily. Maintaining quality is far less difficult.

The stabilizer in Nialk TRICHLOR contains *psp*—permanent staying power—which enables the stabilizer to operate efficiently until cleanout. After cleanout, the solvent is distilled for further use in other operations.

Curtiss-Wright officials say that the assistance they obtain from Hooker technical experts in preventing waste is most important, since they are working with costly metals. Because the degreasing baths have never turned acid, problems in keeping their quality at a high level and the necessity to run tests have been reduced. Whatever your degreasing job or the type of metal you're processing, Nialk TRICHLOR can give you a greater volume of work and reduce your costs, as well as provide a smooth-running operation.

Contact your nearest Hooker Chemical Distributor for information. Or write us. We will be glad to help you with any problems.

HOOKER CHEMICAL CORPORATION

HOOKER CHEMICALS PLASTICS

1407 UNION STREET, NIAGARA FALLS, NEW YORK

Sales offices: Buffalo, Chicago, Detroit, Los Angeles, New York, Niagara Falls, Philadelphia, Tacoma, Worcester, Mass. *In Canada:* Hooker Chemicals Limited, North Vancouver, B.C.

For more data circle 363 on Postpaid Card

DRESSER

CUSTOM ENGINEERED AND BUILT

BY

DRESSER ELECTRIC CO.

2705 WIGHT STREET

DETROIT 7, MICHIGAN

THIS NAMEPLATE ON YOUR

CUSTOM ENGINEERED

D. C. POWER SUPPLIES

is your assurance of

QUALITY AND PRECISION

Dresser Rectifiers are available in standard and special voltages and currents for special power applications.

Each Dresser Rectifier can be equipped with the type of control required for your particular job:

AUTOMATIC VOLTAGE CONTROL . . . with ± 1% output voltage regulation.

AUTOMATIC CURRENT CONTROL . . . with ± 1% output current regulation.

AUTOMATIC AVERAGE CONSTANT CURRENT DENSITY CONTROL . . . in any range.

AUTOMATIC PROGRAMMING . . . for special programmed outputs.

CONTROL METHODS USED: Saturable Reactors, Motorized Variable Autotransformers, Motorized Tap Switches . . . and other methods as required

DRESSER RECTIFIERS, precisely controlled, are performing efficiently and dependably today for Plating, Anodizing, Laboratory Tests, Production Line Tests, Component Testing and many others.

Write or call today for expert advice and assistance on your D. C. Power Supply requirements.

DRESSER ELECTRIC CO.

TELEPHONE: LOrain 8-1655

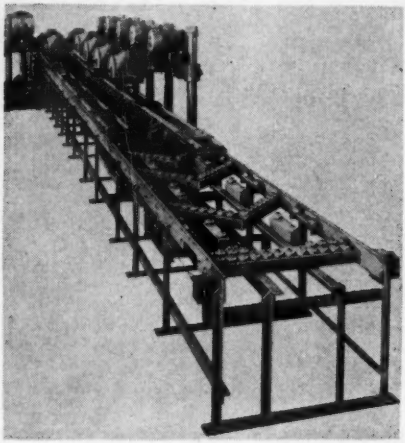
2705 WIGHT STREET DETROIT 7, MICHIGAN

For more data circle 364 on Postpaid Card

New Products . . .

Horizontal-Return Extrusion Finisher

A straight-line automatic for finishing aluminum extrusions has a conveyor that is equipped with platens which will accommodate work pieces



Hammond straight-line automatic equipped with seven 20-h.p. heads to remove die lines and bring up the luster. Conveyor moves continuously at speeds up to 27 ft./min.

up to 22 feet long. The number of finishing heads used is determined by the condition of the rough extrusion and the final finish desired.

Manufacturer: Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

For more data circle 9 on Postpaid Card

★ ★ ★

Agitating-Dip Unit Cleans Small Parts

Consists of a 20-gallon open-head drum packed with 15 gallons of decarbonizing, desludging, devarnishing

(continued)

HENRY B. KOEHLER, H-VW-M's Manager of Electrical Sales

Now...in automatic plating rectifiers

A package of good news for platers!

It's the new *control package* from H-VW-M . . . and here's what it offers you:

Less Downtime, Fewer Rejects. Automatic current limiting is standard, not an extra. Unit won't shut down on normal overloads and shorts.

Grow-Ability. When you need more power in the future, simply connect new units in series or parallel. *No additional controls are needed.*

AVS or ACC. (automatic voltage stabilization, automatic current control) . . . with current limiting . . . are both available at flick of selector switch.

Also yours with this new package control: the advantages of smaller size, less weight, no moving parts. *And the price is hundreds less than you'd pay for the same features in separate rectifier units of conventional design.*

Contact H-VW-M for full details.

H-VW-M *Progress in metalfinishing through advanced processes • equipment*

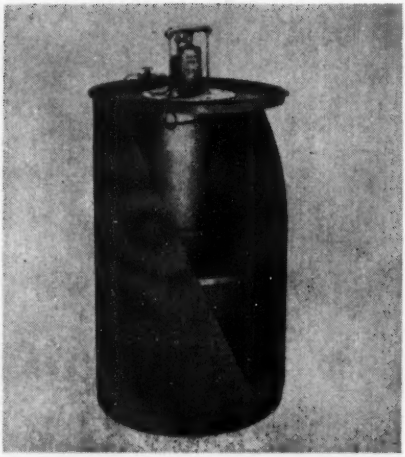
Hanson-Van Winkle-Munning Company, Matawan, New Jersey • Offices in Principal Cities
Alert Supply Company is H-VW-M in the West • Los Angeles • San Francisco

For more data circle 365 on Postpaid Card

compound, a basket that fits inside the drum, and a compressed-air-operated, automatically agitated Mini Dip unit that fits over the top of the drum.

The Mini Dip cleans many types of parts, saving hours of hand brushing and scraping.

The cleaning solution and basket



Magnus 20-gallon Mini-Dip Cleaner

may be used with or without the agitating unit, as needed.

The Mini Dip combines the chemical cleaning action of the solution with the dirt-shearing mechanical action of the up-and-down agitation of basketed parts in solution.

Manufacturer: Magnus Chemical Company, Dept. M-88-32, Garwood, New Jersey.

For more data circle 10 on Postpaid Card

★ ★ ★

Vibratory Finisher

Recently introduced vibratory finishers have lower overall height so that load is easier. They tilt 180 degrees to

(continued)

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use for over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance in Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

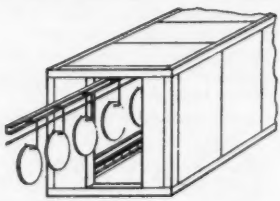
TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 366 on Postpaid Card

IN YOUR NEXT **DRY-OFF** AND **FINISHING OVENS**
SPECIFY **RED-RAY** INFRA-RED
GAS BURNERS

Backed by more than 20 years of experience, RED-RAY Burners are effective, efficient, economical. Contact us for more information.

RED-RAY MFG. CO., INC.
Cliff Lane, Cliffside Park, N. J. • Tel.: WHitney 3-1000



For more data circle 367 on Postpaid Card

STEVCO PROCESSES AND SUPPLIES *mean a brighter future for electroplating*

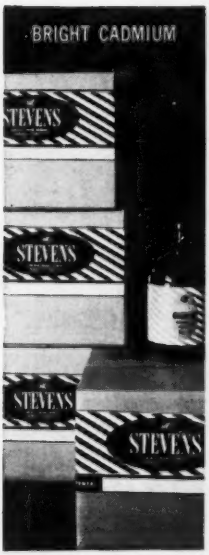
STEVENS EXPANDED MANUFACTURING FACILITIES now provide several superior plating processes, each field-proven and certified by the famous Stevens name.

A GREATLY-ENLARGED CUSTOMER SERVICE LABORATORY permits accurate analysis and checking of solutions on a much broader scale than ever before. A skilled staff is available for immediate research assistance on all your plating problems.

STEVENS FIELD SERVICE TEAM has been increased by a number of well-qualified metal finishing technicians to give you fast, dependable on-the-job service, process and equipment recommendations.

A COMPLETE LINE OF METAL PREPARATION AND PLATING CHEMICALS, as well as supplies and anodes of all types are distributed by Stevens.

FOR IMPROVED PERFORMANCE in bright zinc, cadmium and copper plating processes, call your Stevens Representative for complete information. Write today for our informative brochure on prices, packaging and descriptive specifications.



CHEMICALS, SUPPLIES AND ANODES

frederic b. STEVENS, inc.

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Buffalo · Chicago · Detroit · Cleveland · Dayton · Wallingford (Conn.) · Indianapolis · Springfield (Ohio)

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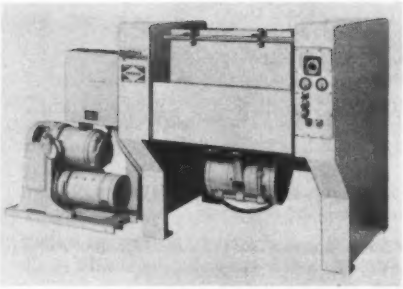


Jackson Vibrado Model JV-75: finishes internal and external surfaces of complex parts.

unload. Media and parts travel in controlled orbital flow pattern to clean, descale, deburr, radius, burnish and color parts inside and outside in a single operation. No special floor mounts necessary. Quiet operation.

National Distributor: Abrado Finish Corporation, 1750 Elizabeth Ave., N. W., Grand Rapids, Mich.

For more data circle 11 on Postpaid Card

Paint Stripper for Zinc-Clad Steels

An alkaline stripper for removing paint from zinc-coated steel takes off alkyds, melamines, phenolics and other synthetic paints without attacking the zinc coating.

Called Chemclean No. 441 B, the product is formulated for use on hot-dipped or electrolytically coated zinc-clad steels that have been painted and must be stripped for some reason—rejects, damaged parts and so on.

Used at 180-200 deg. F., the stripper removes paint quickly, leaving a surface ready for immediate re-painting.

Painted zinc-clad steel is being used increasingly in applications where long-term outdoor exposure is expected.

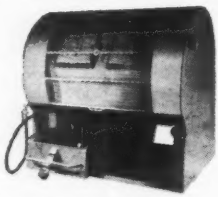
Manufacturer: Chemclean Products Corporation, 15-08 121 St., College Point 56, N. Y.

For more data circle 12 on Postpaid Card

EXCUSE OUR NEGLIGENCE FOR JUNE

We Were Just Too Darn Busy to Advertise Another

FIRST COME FIRST SAVE



$1299.00 1 Rebuilt Grav-I-Flo Model 48-2, ½" lined, 20 RPM Deburring and Burnishing Barrel. Each compartment 24 x 40. Unit driven by a 5 HP, 220/440/3/60 cycle Synchrogear Motor. Complete with Reversing Switch and 1 Tri Cycle Hoist Pan.

We have one of the largest stocks of rebuilt Metal Finishing Equipment in the country.

NOTE: Our apologies go out to the great number of people who were too late in calling for the Udylite Rectifier as advertised in May.

BAKER BROS., INC.

RT. 138 • DAvis 6-6630 • CANTON, MASS.

For more data circle 369 on Postpaid Card

Have you tried

SAND BLASTING?

The fastest, most economical method of removing rust, paint, chemicals, scale, etc.

The Sandy Jet Portable Sand Blaster

- Low cost.
- Saves up to 85% of time required for hand cleaning.
- Operates on 50 to 225 lbs of air pressure.
- Needs no blasting room.
- Three sizes of nozzles available.
- 10 day money-back guarantee.

Complete with face shield, operator's hood, and two extra nozzles.

Only **$39.95** F.O.B. Columbus, O.

Free brochure on request

Universal Industrial Supply Co.

P.O. Box 6764 Columbus 9, Ohio

For more data circle 370 on Postpaid Card

cleans steel after spot welding!

Hubbard-Hall's new 450 cleaner **often eliminates an entire operation.** One plater skips acid pre-pickling because 450 removes the light weld and heat scale from his spot-welded fabrications. Another uses 450 to eliminate all pickling before automatic plating. Others who used to use two cleaners before finishing use 450 instead. Besides removing grease, oil, dirt and other shop soil 450 also removes mild rust and stain. This powerful cleaner produces exceptional penetrating and soaking action. It's also low sludging, even when scale or rust is being removed, and absolutely non rusting.

Put Hubbard-Hall's new 450 cleaner to work for you. Write today for our bulletin containing complete information . . . then let us show you what 450 can do right in your plant.

PLANNED SERVICE *for better metal finishing*

THE Hubbard Hall CHEMICAL COMPANY • Waterbury, Conn.

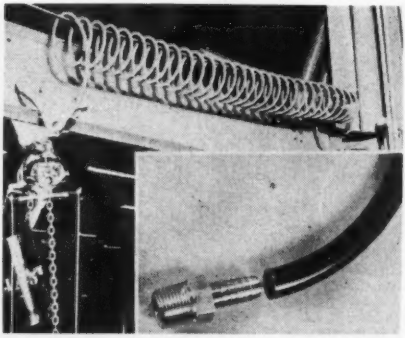
For more data circle 371 on Postpaid Card

Self-Storing Air Hose

Synflex Heavy-Duty Self-Storing Air Hose has a heavier-than-normal wall thickness. It is designed for use where plant air pressure is greater than average or where mechanical stresses are extreme.

Helically coiled like a spring, it extends like a telephone cord to the needed working length. After use, it retracts into a small storage space—about 1/30th of its maximum working length.

The Self-Storing principle keeps the hose off the floor and out of the way; eliminates tripping and stumbling over trailing hoses and reduces accidents. Made from a special nylon formulation, Synflex Heavy Duty Self-Storing Air Hose is impervious to oils and does not absorb oil. Minimum working pressure with 4 to 1 safety factor is 250 p.s.i. at 75 deg. F. Excellent dimensional stability and toughness.



Synflex Self-Storing Air Hose

Manufacturer: Synflex Products Div., Samuel Moore & Co., Mantua, Ohio.

For more data circle **13** on Postpaid Card

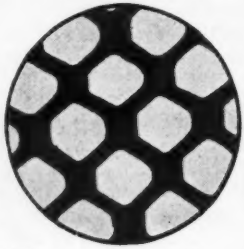
PROTECT FINE PLATED SURFACES

with **RP** *Neotex*®

PROTECTIVE MESH

Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.

RP *Neotex*®



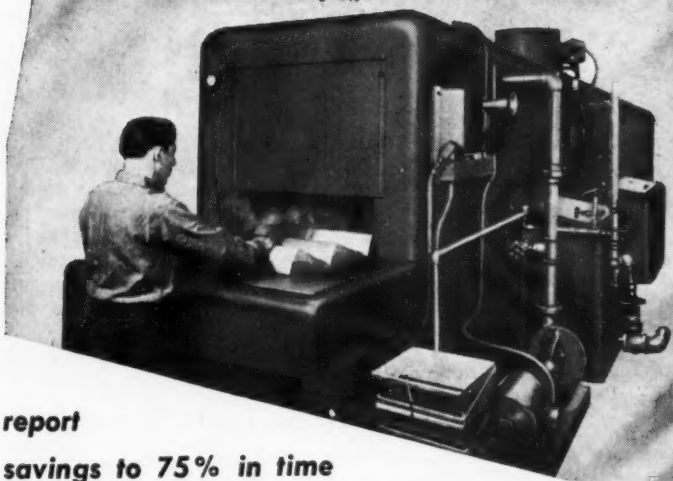
RESEARCH PRODUCTS CORPORATION

Dept. 76-G, Madison 1, Wis.

For more data circle 372 on Postpaid Card

Metal Finishing Specialists

use **Cincinnati** machines



report

savings to 75% in time

81% in labor . . . 120% more production!

When you find a smoothly functioning finishing line, you'll often find it headed by a Cincinnati Cleaning Machine. Whatever your production . . . whatever your problem . . . let Cincinnati engineers suggest a time and money-saving solution.

If you would like proof of Cincinnati's ability to engineer equipment to a problem and to a budget, too, write today. Absolutely no cost, no obligation. Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

For more data circle 373 on Postpaid Card

Rust Preventive Provides Better Protection, Better Coverage

Magnafilm 120 provides years of "shelf-life." The solvent-thinned product can be brushed, sprayed or dipped. It dries by solvent evaporation, leaving a thin, transparent film. Removes soluble oil that remains after grinding. Will not crack with thermal expansion and contraction of product being protected.

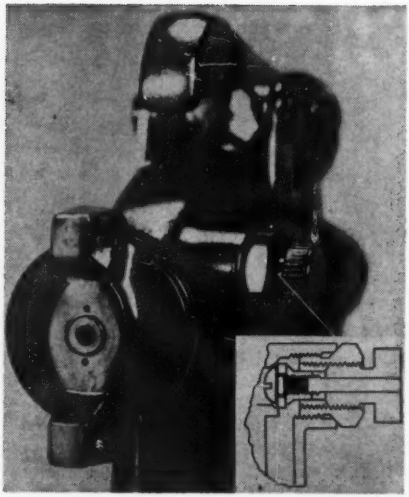
Manufacturer: Magnus Chemical Co., Inc., Garwood, N. J.

For more data circle 14 on Postpaid Card

★ ★ ★

Patented Valve for Spray Guns Provides Fast Spray or Fine Spray

A syphon-pressure valve that converts spray guns to dual-syphon pressure guns has been patented by Sharpe Manufacturing Co.



Spray gun with conversion valve

The recently introduced valve is made for Sharpe's fixed-cup line. By merely twisting a knob, the gun equipped with this valve is converted to fast spray for large work or heavy paint or to a more easily controlled spray for finer work. It makes possible the use of both internal and external nozzles.

Manufacturer: Sharpe Manufacturing Co., 1224 Wall St., Los Angeles 15, California.

For more data circle 15 on Postpaid Card

★ ★ ★

Low-Priced Ultrasonic Cleaner

An ultrasonic cleaning unit with a one-pint tank has a generator that produces 30 watts average, 120 watts peak. Broad-bank frequency-modulated circuit is said to eliminate need for automatic tuning.

Plugs into any socket, consumes no more current than a light bulb.

(continued)

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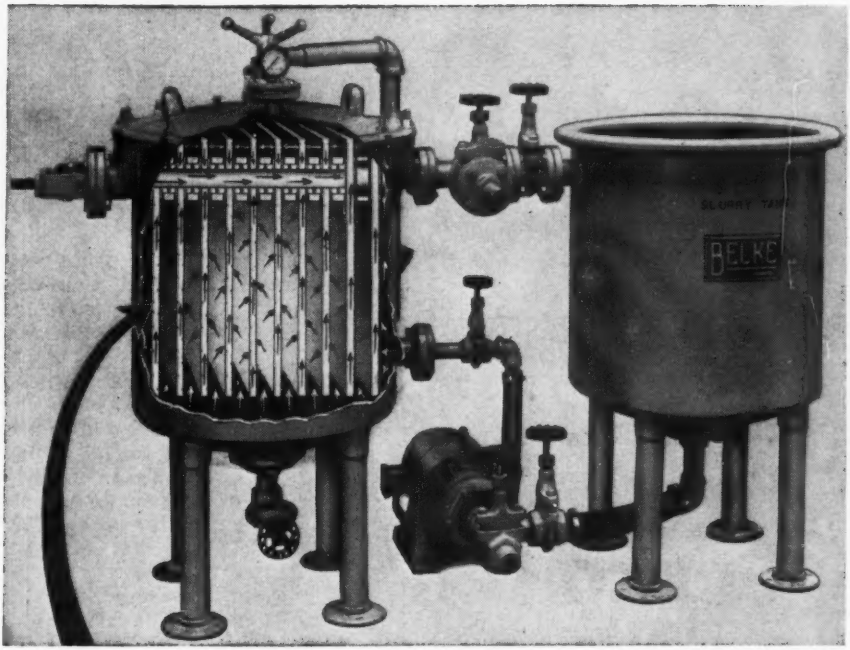

Filter Area determines *REAL* Filtering Capacity

The BELKE Filter Bulletin shows how BELKE Filters maintain high filtering efficiency. Send for your copy today.

Round, square or flat—no matter what shape—**unless you have the necessary square feet of filtering area you do not get the filtering capacity.**

That's why, since 1921, BELKE Filters have provided the great filtering area needed to assure high plating efficiency and long operating periods between cleanouts.

No matter how large your filtering requirements—2000, 4000, 6000, or 10,000 gallons per hour—we can meet them with BELKE durable, long wearing filters of premium efficiency, designed and priced to give you the most filtering obtainable

With too small a filter area you may get good results for a few minutes but the filter clogs rapidly and the flow of filtered solution soon peters out.

Belke MANUFACTURING COMPANY
947 N. Cicero Ave., Chicago 51, Ill.
EVERYTHING FOR PLATING PLANTS

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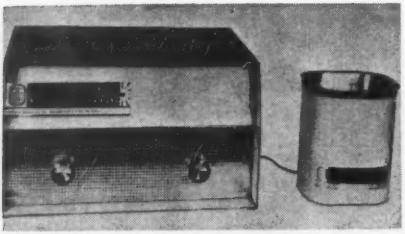

System Thirty: Economical Ultrasonic Unit

An economical unit, it is useful for cleaning a variety of small parts.

Manufacturer: Ultrasonic Industries, Inc., Ames Court, Engineers Hill, Plainview, L. I., N. Y.

For more data circle 16 on Postpaid Card

★ ★ ★

Kit for Making Prototype Printed Circuits

Fotoceram grid boards have been put into kits that provide a designer with all materials needed to make prototype printed circuitry in 15 minutes, without leaving his desk. The kits contain the etching resists and etching materials that work best with the copper-clad Fotoceram glass-ceramic.

The grid boards, sold without accessories until now, are studded with 0.052-inch holes in a 0.1-inch grid, making circuit and component layout easily manageable. Users etch away the copper metallizing on the boards except where circuit runs and pads are desired.

The kit contains two 3-by-5-inch boards, grid paper for practice layouts, liquid etching resist for

(continued)

Production Model

CHECK THESE FEATURES!

1. A low cost 5 gallon airless unit.
2. Weighs only 46 pounds, yet does the work of units much heavier.
3. Instant-latch cover and ease of cleaning gives the Monark "greased lightning" color changing speed!
4. Airless operation eliminates overspray and bounce-back...
5. Handles anything from protective coatings to precise final finishes.
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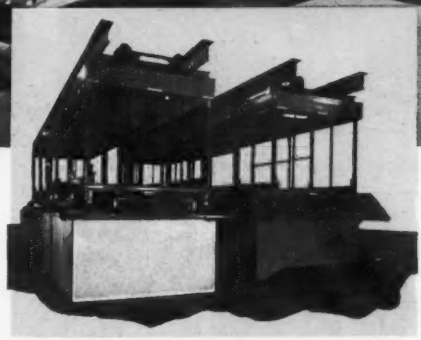
SECRETARY'S DELIGHT, SMITH-CORONA MARCHANT 400



MODERN CROWN "MP"

aids production at Smith-Corona Marchant

Many companies like Smith-Corona Marchant are daily maintaining quality plating and meeting production schedules with CROWN M.P. (multi-purpose) custom designed mechanized plating machines. At Smith-Corona Marchant one CROWN M.P. Automatic does the zinc plating while another CROWN M.P. handles the nickel and chrome plating of thousands of precision typewriter parts every day.

Mechanizing and automatic programming of your plating department can easily be the key to stimulating profits by—reducing costs—increasing production—and improving quality—for processing of barrel or rack type work—write for Bulletin M.P.

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For more data circle 376 on Postpaid Card

Complete Kit for Making Printed Circuits

board circuit layout, vinyl resist tape, two bags of ammonium persulfate crystals for making etching solution, instructions, a price list for re-ordering individual processing materials, sources of alternative materials, addresses of suppliers, and a list of compatible tube and transistor sockets, connectors, miscellaneous hardware.

The kit comes in a plastic box that serves also as an etching pan. The liquid etching resist comes in a tube-pen with a ball point tip. The resist tape comes in a package consisting of 40 dots and 10 nine-inch strips. The ammonium persulfate etchant dissolves in warm tap water.

Manufacturer: Corning Electronic Components, Corning, N. Y.

For more data circle 17 on Postpaid Card

★ ★ ★

"Low Profile" Barrel Plating Superstructure

The "Low-Boy" superstructure re-

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cently announced by The Singleton Co. measures only 30½ inches from top of U-bolt hoisting fixture to bottom of the cylinder.

Advantages of the "Low-Boy" construction are as follows: drive belts are shorter, cost less; less travel required in vertical hoisting, thus transfer time is reduced; since barrels extend only 7½ inches above the tanks, there is less danger of collisions when transferring other parts over the tanks while plating is in progress; requires less headroom.

This superstructure can be used with various types of barrels and in existing barrel plating installations where modernization to belt drive and inverted V-contacts is desired.

Manufacturer: The Singleton Co., 11770 Berea Rd., Cleveland 11, Ohio.
For more data circle 18 on Postpaid Card

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NEW JUNIOR SIZE VIBRA-WASHER

GIVES YOU AUTOMATIC PROCESSING OF METAL PARTS

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NO NESTING OF PARTS DURING CLEANING OR CONDITIONING CYCLE

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The new Simplicity Junior Size Vibra-Washer employs a vibrating work carrier that automatically conveys metal parts through a cleaning or conditioning bath. It cleans so thoroughly that chips, oil and grease are removed from even blind or slotted openings; cleans so gently even the most delicate threads or flanges are not harmed.

If you have a tough cleaning or conditioning job, Simplicity Engineering Company can help. For information, write or call the Industrial Washer Division.

223

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ENGINEERING COMPANY • DURAND 25, MICH.

FOR CANADA: Simplicity Materials Handling Limited, Guelph, Ontario
For more data circle 378 on Postpaid Card

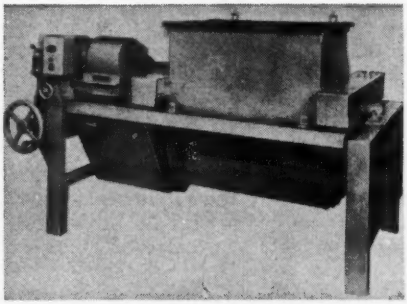
Vibratory Finisher Has Improved Drive Mechanism

The Vibrahone finishing tub has a vibratory mechanism which shakes the tub of parts and media by means of an eccentric drive and rubber mounts rather than springs.

This suspension and drive system is said to result in longer service life and more efficient use of power. Frame and floor vibration are negligible.

The tub is detachable and tilts easily for draining. All moving parts are guarded.

This equipment is similar to conventional barrel tumbling equipment in that it refines surface finish and removes burrs by means of loose abrasives. Instead of tumbling its contents, however, the tub vibrates to cause movement of parts and media inside the tub.



Vibrahone Finishing Tub: improved drive

Manufacturer: Minnesota Mining and Manufacturing Co., 900 Bush Ave., St. Paul 6, Minn.

For more data circle **19** on Postpaid Card

★ ★ ★

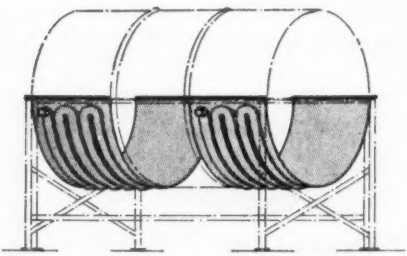
Drum Warmer-Cooler

Panel-type heat exchangers (Panelcoils) curved to fit the contour of a drum will heat or cool the contents quickly and efficiently, according to the manufacturer, Dean Products, Inc.

Hot water, steam, or refrigerant is piped through the embossed panels, as required.

Manufacturer: Dean Products, Inc., 1048 Dean St., Brooklyn 38, N. Y.

For more data circle **20** on Postpaid Card



Curved Panelcoil: heats or cools drums

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New in concept—new in function. Laboratory and field tested.

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Lincoln's newest Dyna-Spray (illustrated), mounted on a 5-gallon pail, is the most efficient and economical airless painting unit you can buy. The 44-to-1 ratio Power-Master pump is the most powerful available on this type equipment. The handle on the drum cover makes this unit easily portable. Simply attach your present Lincoln spray gun and hose, and take it anywhere . . . by hand, or on a two-wheel dolly. If you need a complete outfit, specify Lincoln Model MD-82. It includes a tungsten carbide-tipped "No-Air" gun, regulator and 25 feet of Nylon hose with static wire—all for less than $350. Dyna-Spray assures more even coating, minimum overspray, less fog on almost any finishing job. You can't match it for performance and cost.

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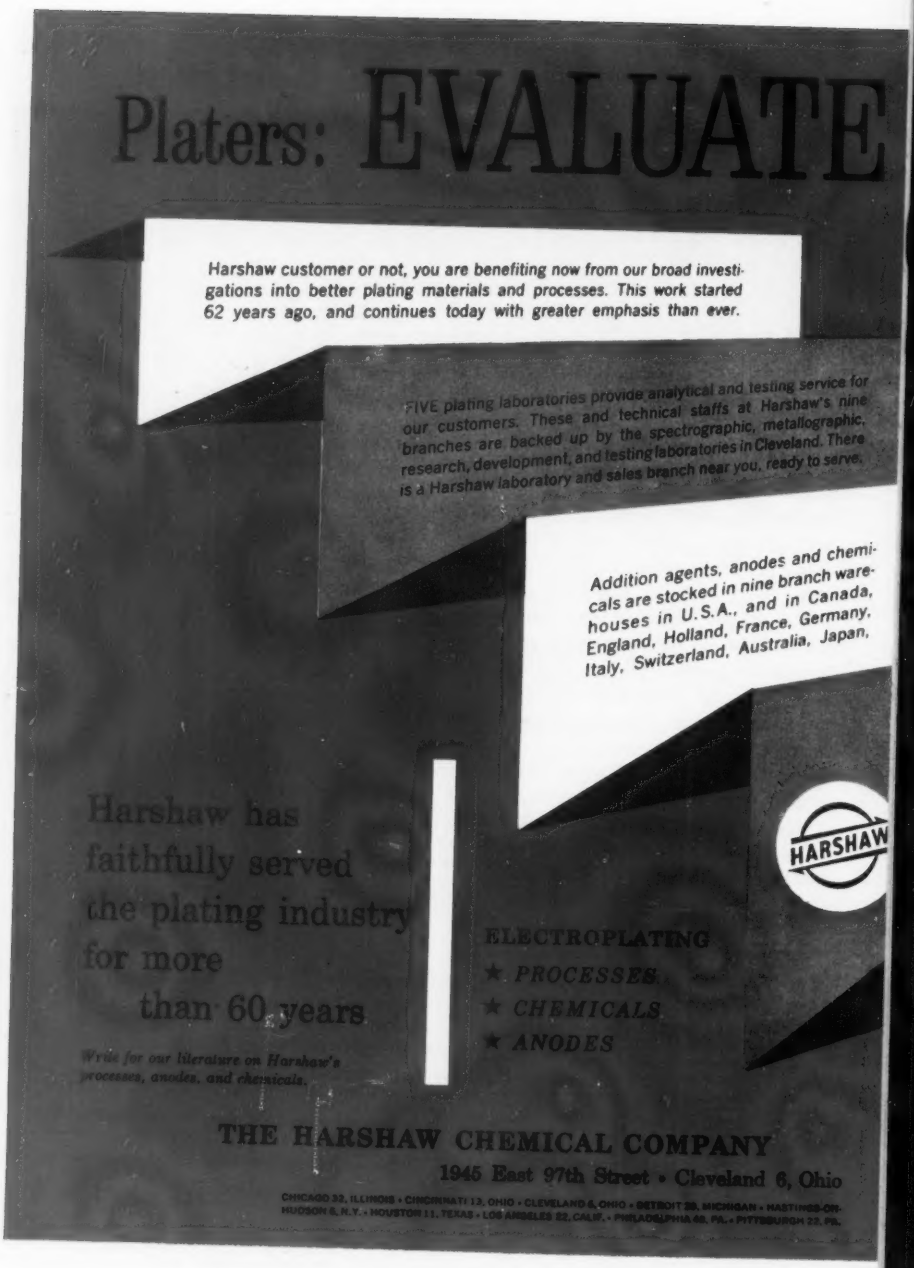
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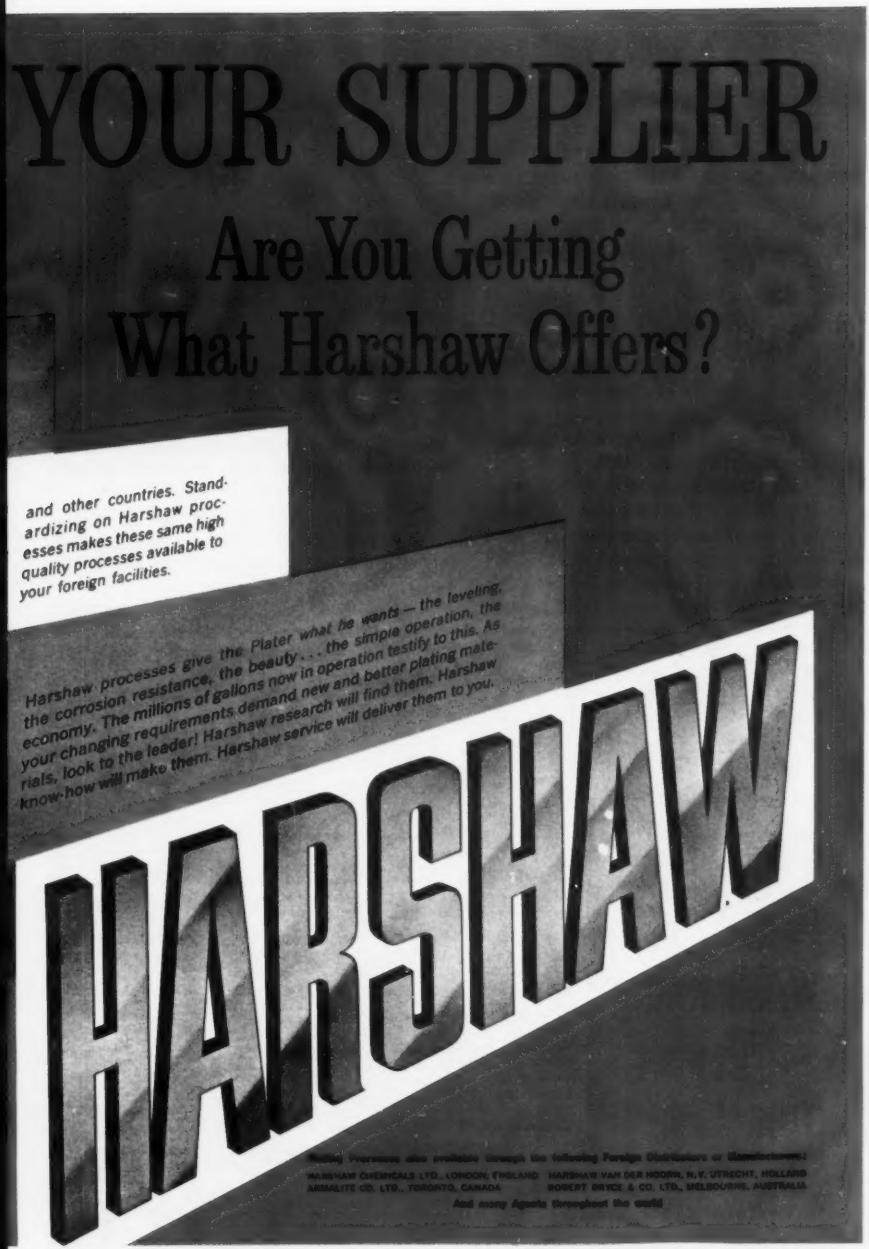
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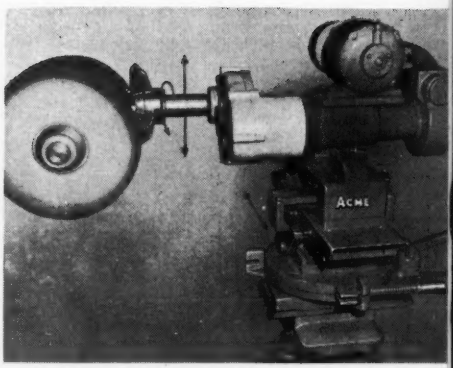
For more data circle 381 on Postpaid Card

Attachment Aids Buffing of Contoured Parts

A vertical oscillating attachment for Acme semi-automatic buffing machines permits "mush" or "slough" buffing on recessed and contoured parts.

The attachment is ideal for the finishing of parts such as deep, irregular-shaped die castings, hub-cap wheel spinners, horn rings, faucets, bath-tub spouts, drill motors and emblems having deep contours and recesses.

Mounted directly to the main spindle housing of Acme semi-automatic machines, the oscillating attachment simultaneously rotates the part and moves the part vertically above and below the center height of the buffing wheel to provide a greater part-contact area. As the part travels vertically, the buffing wheel "mushes" into the recesses, depressions, and around the part contours to finish all surfaces.



Acme vertical stroking attachment mounted on an Acme E-10 semi-automatic machine which utilizes a horizontal stroke to eliminate contouring of the buffing wheel.

Manufacturer: Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Mich.

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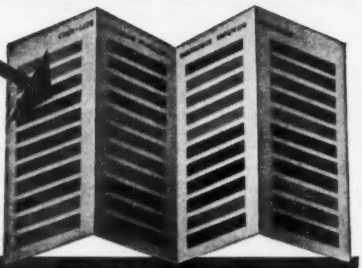

CRESCENT BRONZE POWDER CO.
118 W. ILLINOIS ST., CHICAGO 10
1841 S. FLOWER ST., LOS ANGELES 15

For more data circle 382 on Postpaid Card

For Cleaning Abrasive Belts

Belt-Life, a compound developed for cleaning abrasive polishing belts and wheels. It contains an ingredient which extends the life of the belt or wheel by cleaning the abrasive surface, by preventing it from loading with metal, and by maintaining its cutting efficiency.

Belt-Life also lubricates the abrasive surface, enabling it to produce finer finishes. Because clean abrasive cuts faster, it is possible to use a finer grit belt and produce a smoother surface without the use of a grease stick, the manufacturer reports.

Belt-Life can be applied with a brush, swab or spray while the belt or wheel is operating at normal speed.

Manufacturer: Grav-I-Flo Corp., Sturgis, Mich.

For more data circle **22** on Postpaid Card

Flat-Spray Airless Painting Tips for Coating Drum Interiors

Flat-Spray Airless Tip

An airless paint - spraying and coating tip for finishing internal surfaces of drums, cans and other production parts where inside areas must be sprayed. Tips are supplied with single or double orifice inserts and project a flat spray at right angle to the nozzle.

Designated 9018-TC spray tips, they may be used for manual or automatic spraying.

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle **23** on Postpaid Card

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For more data circle 383 on Postpaid Card

Spray Decorating Machines Have Interchangeable Gun Units

Conforming Matrix Corporation has redesigned its pressure-contact spray painting machines and automatic spray decorating and mask washing machines to permit interchangeability of oscillating, whirling and reciprocating gun units within each machine and between different machines. Mask washing facilities for producing clean, dry masks are also available in the pressure contact machines.

Manufacturer: Conforming Matrix Corp., 830 New York Ave., Toledo 11, Ohio.

For more data circle **24** on Postpaid Card

★ ★ ★

Ultrasonic Degreaser for Freon Solvent

Two-stage ultrasonic degreasers designed specifically for use with Freon TF solvent, a product of DuPont. This solvent is recommended for use in cleaning parts containing plastics, metals, elastomers or insulation which would ordinarily be attacked by chlorinated solvents such as trichlorethylene and perchlorethylene.

Parts are first placed in the ultrasonic chamber to remove or loosen all contamination. They are then transferred to the vapor area where they receive a final cleansing in pure distilled Freon vapors. They emerge from the unit completely dry.

All units are self-distilling permitting continual re-use of the Freon solvent.

These bench model ultrasonic cleaners are available in three sizes, each with matched generator.

Manufacturer: National Ultrasonic Corp., 95 Park Ave., Nutley 10, N. J.

For more data circle **25** on Postpaid Card

Something to Crow About . . .

Buffing Compound #4143

ARDCO'S recent development, #4143 for steel buffing, gives us a product we just can't help but crow about.

#4143 cuts like a Banshee.

#4143 colors steel to a brilliant, flawless finish.

#4143, a new formulation, gives you greater efficiency in finishing steel.

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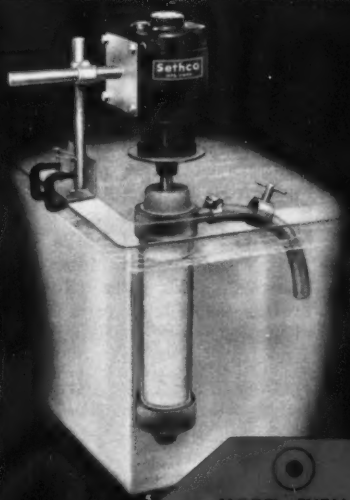
SUBMERGED FILTER SYSTEM

for universal application



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- dynamic full-view filtration in depth
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- leakproof, agitates without aerating, self-priming
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from 70° F. to 200° F.

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HIGH CHLORIDE APPLICATIONS: Woods' Nickel, Iron, etc.
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ALL METAL CONTACT ELIMINATION: Acid gold, rhodium, etc.
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For more data circle 384 on Postpaid Card

One-Coat Porcelain Enameling Process Using Citric Acid

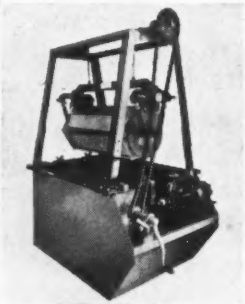
Patent No. 2,981,633 recently issued by the U. S. Patent Office, claims the use of citric acid in porcelainizing.

Known as the Pfizer Citrobond process, the system utilizes citric acid for pickling instead of the sulfuric acid commonly used in the conventional two-coat process. Pickle baths charged with dry, water-soluble citric acid in quantities of one pound per gallon eliminate the need for a ground coat and allow direct application of the cover-coat enamel.

The inventors say that aside from its ability to etch steel for direct-on enameling, the Pfizer Citrobond process is easily adapted to existing plant facilities and no major equipment installations are necessary.

Manufacturer: Chas. Pfizer & Co., 630 Flushing Ave., Brooklyn 6, N. Y.
For more data circle **26** on Postpaid Card

ACID PROOF PLATING BARRELS



A new horizontal plating barrel designed and constructed to withstand any type of plating solutions. High temperature Lucite cylinder is custom made, every panel is cut to size and double fused for double protection, longer life under the roughest conditions. The hangers are made of Lucite or Glass melamine with removable Haveg bearings. The upper part of the hanger are heavy castings, coated with heavy Plastisol.

Write today for complete details.

NU-LITE PLATING EQUIPMENT CO., INC.
777 MEEKER AVE. • BROOKLYN 22, N. Y.

For more data circle 385 on Postpaid Card

Anode for Use with High-Speed Fluoride-Ion Plating Solutions

HS-32 plating anode is made from a lead alloy developed for use with high-fluoride-ion plating solutions. This anode has superior current-conducting properties after idle or shut-down periods, the developer reports. Available in four diameters and in any length.

Manufacturer: Heil Process Equipment Corp., 12850 Elmwood Ave., Cleveland 11, Ohio.
For more data circle **27** on Postpaid Card

Anode for fluoride solutions

★ ★ ★

Corrosion Resistant Plastic

Bonate CF-9070—a corrosion-resistant plastic capable of sustaining continuous operation at temperatures up to 300 deg. F., has been developed by Beetle Plastics Div. of Crompton & Knowles Corp.

CF-9070 is useful in making processing tanks, pipe and ducting. Because of its fiberglass reinforcement the Bonate plastic has good physical properties as well as excellent chemical resistance.

CF-9070 resists practically all acids and solvents. It is especially resistant to alkalies, even hot, concentrated sodium and potassium hydroxide.

Manufacturer: Beetle Plastics Div. of Crompton & Knowles Corp., Fall River, Mass.
For more data circle **28** on Postpaid Card

Aluminum Tinting Pastes

Two recently introduced grades of aluminum tinting paste widen the range of pastel metallic finishes.

Developed by Alcoa Research Laboratories, these pigments have been designated Alcoa Aluminum Tinting Paste Nos. 225 and 226. Both offer excellent brightness and gloss characteristics for most paint bases, with No. 226 providing special gloss advantages in enamel systems. Closely-controlled particle-size distribution allows truer yellows, golds and reds to be produced, without greatly disturbing the mass tones of these colors.

Manufacturer: Aluminum Company of America, 788 Alcoa Building, Pittsburgh.

For more data circle **29** on Postpaid Card

★ ★ ★

Electrodeburring Solutions

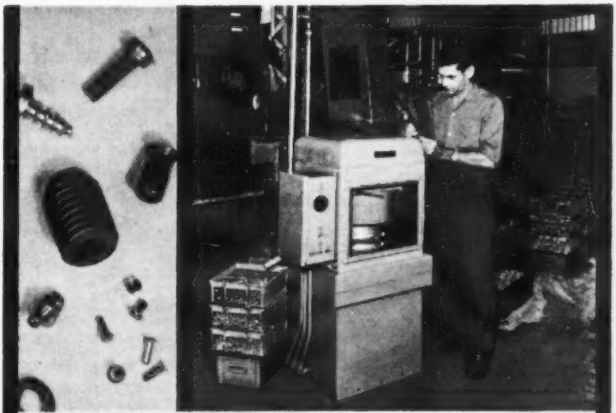
Special solutions developed by Battelle Memorial Institute for removing moderate - sized burrs from parts made of carbon steel, stainless steel, copper, brass, aluminum, nickel and many other metals and alloys.

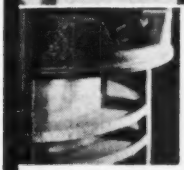
Stock removal varies from a few tenths of a thousandth to thousandths of an inch, depending upon the size of the burrs to be removed. Hydrogen embrittlement is no problem, since the parts deburred are anodes.

Metal surfaces are also upgraded during the electrodeburring process. One manufacturer reports improving R.M.S. from 14 to less than 3.

Midwest Distributor: Globe Chemical Co., Murray Rd. and Big Four R.R., Cincinnati 17, Ohio.

For more data circle **30** on Postpaid Card





Manpro Vibras utilize a unique vibrating spiral elevator to move work rapidly up through non-flammable cleaning solvents and vapors.

Write today for complete data on the New Vibra *Bantam*

NEW

VIBRA *Bantam*

IN-LINE DEGREASER

This compact yet mighty degreaser (only 20 in. sq.) is priced and engineered to revolutionize production degreasing. Now, equip every small part manufacturing machine in your plant with a new Vibra *Bantam* at surprisingly low cost. Eliminate dripping tote pans. Cut manpower. Parts feed automatically, emerge chipfree, dry—ready for immediate inspection.

MANPRO CORPORATION

26000 CAPITOL AVE., DETROIT 39, MICH.

For more data circle 386 on Postpaid Card

Emulsifiable Rust Preventive

A water-compatible, non-flammable rust preventive. Can be applied directly to dry surfaces; or to surfaces wet with water or with soluble cutting-oil emulsions.

Called Magnafilm 230, the product furnishes excellent indoor protection, eliminates the fire hazard often associated with solvent-cutback rust preventives, removes corrosive fingerprints and protects against fingerprint damage during subsequent handling.

The thin, transparent, polar film does not interfere with visual inspection or impair the legibility of identifying marks.

Magnafilm 230 conforms to Military Specification MIL-C-40084 (ORD) covering "Corrosion Preventive Compound, Water-Emulsifiable, Oil Type."

Manufacturer: Magnus Chemical Co., Dept. M8832, Garwood, N. J.

For more data circle **31** on Postpaid Card

★ ★ ★

Mask Washer

Cleans masks used in spray decorating machines. Removes 20 wet coats of paint in 20 seconds by spraying solvent at 20 p.s.i. Explosion-proof pump, 40 non-clogging nozzles.

Manufacturer: Deco Tools, Inc., 4321 Harris St., Toledo 13, Ohio.

For more data circle **32** on Postpaid Card

★ ★ ★

Oxide-Removing "Dip" for Printed Circuits

Electroplating on copper and copper alloy printed circuits is said to be substantially improved by precleaning circuits with Deoxyde, which removes oxides, oils and fingermarks by dipping.

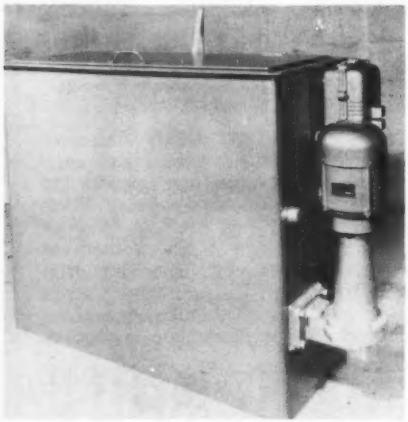
Printed circuits are said to be effectively cleaned by dipping for 30 seconds to 5 minutes, depending on size and configuration of circuit design.

The formulation cleans without affecting plating resists or etching copper circuits.

Deoxyde is packaged in a polyethylene "cubitainer," from which it is easily poured to mix with equal parts of water in the dip tank.

Manufacturer: The Meaker Co., subsidiary of Sel-Rex Corp., Nutley, N. J.

For more data circle **33** on Postpaid Card



Mask Washer: 20 coats off in 20 seconds

Deoxyde: for cleaning printed circuits

Additive for Chromium Plating Solutions

A foam blanket forms on the surface of chromium plating solutions following addition of Spray Stopper, a concentrated liquid additive. This blanket prevents "misting" and loss of solution.

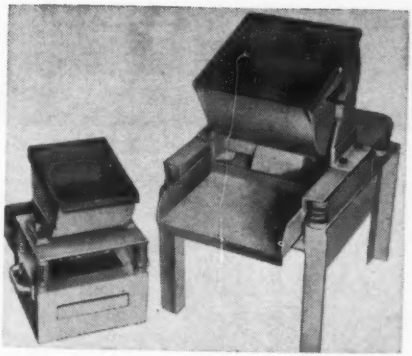
Manufacturer: A-Chem Supply Co., 4463 W. Lawrence Ave., Chicago 30.
For more data circle **34** on Postpaid Card

★ ★ ★

Two Small Vibratory Finishers

Designed for removing burrs and improving surface finish on short runs of small parts. Capacities, three gallons and one gallon.

Both machines have totally enclosed motors. Neither has to be bolted down.



Vibratory Finishers: one-gallon, three-gallon

The one-gallon model is dumped by removing it from its mount, while the larger unit swivels to dump into a receiving pan.

Manufacturer: Ultramatic Equipment Co., 1948 North Cicero Ave., Chicago, Ill.
For more data circle **35** on Postpaid Card

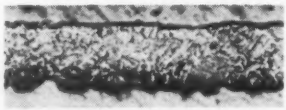
SCREEN PROCESS PRINT WITH
POSITIVE ADHESION
on most flexible or rigid
VINYL SURFACES!
NAZ-DAR GV-SERIES GLOSS VINYL INK AND NAZ-DAR VF-SERIES FLAT VINYL INK
Both NAZ-DAR Inks are expressly formulated to adhere to most vinyl or vinyl impregnated surfaces. These inks become an integral part of the vinyl surface that's being printed. They force dry in seconds; air dry in 20 to 40 minutes. NAZ-DAR GV and VF Series Inks are characterized by their excellent flexibility. Both resist acids, alkalies, detergents, grease, alcohol and gasoline.
NAZ DAR COMPANY
WRITE FOR COLOR CARDS, TECHNICAL DATA SHEET
The NAZ-DAR Company
Dept. PF ,461 Milwaukee Avenue, Chicago 10, Illinois
For more data circle 387 on Postpaid Card

Call Du Pont: for better top-quality chemicals . . . timesaving

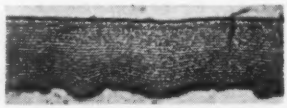
Now . . . you can deposit a level coat of copper on metal parts

New process lowers finishing costs . . . improves appearance . . . provides an excellent undercoating for nickel and chromium.

1. Photomicrograph shows 0.001-inch copper plating on polished steel of 24 RMS. Conventional copper plating (above) shows uneven surface using direct current.



2. Du Pont's level-coating process with *interrupted current* shows amorphous structure and relatively level surface . . . satisfactory where maximum leveling is not required.

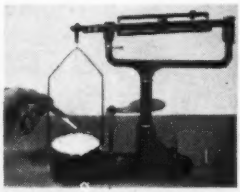


3. Same process with current reversal gives laminar structure, extremely level surface. *Current reversal* is employed where maximum leveling of surface is desired.

A combination of chemical additives and current variations form the basis of this new leveled copper plating method. Included are a high-efficiency cyanide copper bath and special Du Pont addition agents: Elchem 1396 and 1442M. The process can be easily and inexpensively adapted to most plating operations.

You'll avoid trouble and save time with new Du Pont double salts—

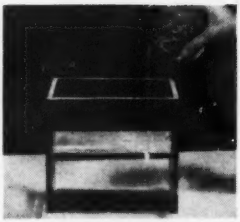
Sodium-Copper Cyanide and Potassium-Copper Cyanide



NEW DIRECT METHOD

1. You weigh required amount of Du Pont double salt instead of potassium or sodium cyanide *and* copper cyanide.

2. You dissolve double salt in water or plating solution. You eliminate steps of dissolving separate chemicals.



3. You add double salt directly to plating tank with no filtering necessary. Active ingredients are in proportions usually required. You save time, reduce handling, avoid waste and mixing errors.

The balanced composition of Du Pont double salts simplifies calculations required in making up new baths or replenishments. (1 oz. potassium-copper cyanide double salt equals 0.26 oz. copper, or 0.37 oz. copper cyanide; 1 oz. sodium-copper cyanide double salt equals 0.29 oz. copper or 0.41 oz. copper cyanide.) Both Du Pont double salts are packed in handy, moisture-resistant 100-lb. net fiber containers.

DISTRICT OFFICES

Boston, Mass. . . . . 45 Fourth Ave., Waltham 54, Mass.
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Cleveland 20, Ohio . . . . . 11800 Shaker Blvd.
Dallas 21, Texas . . . . . 8510 Ambassador Row
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electroplating at your plant... methods... dependable service

Two convenient forms of sodium cyanide 97%

ALL-PURPOSE CYANOBRIK®

—handy, pillow-shaped briquettes of 97% minimum sodium cyanide for all applications: plating, case hardening and chemical manufacture. Cuts inventory and purchasing problems. Made by a new Du Pont process, the briquettes are lower in moisture content and are more moisture-resistant than before.

CYANOGRAN® M

—granular, easily dissolved form of 97% minimum sodium cyanide. Ideal for dry compounding where uniformity of size is desired. "Cyanogran" M will pass through a 10 mesh screen but is retained on a 50 mesh screen. Absence of fines and dusting makes it easy to handle. It sells at the same low price as All-Purpose "Cyanobrik".

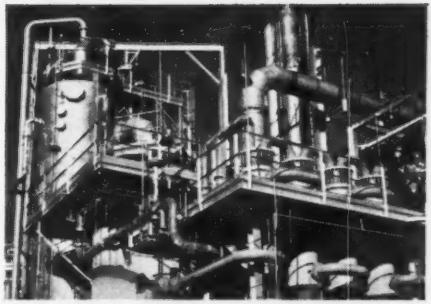
Du Pont sodium cyanides are highly suitable for cyanide electroplating solutions, including copper, brass, zinc and cadmium normally using sodium cyanide. Negligible sulfide content makes them especially attractive for use in sulfide-sensitive, bright copper baths. Specifications:

(NaCN-97% min.; NaCl-0.2% max.; Sulfides as S-0.0085% max.)

POTASSIUM CYANIDE

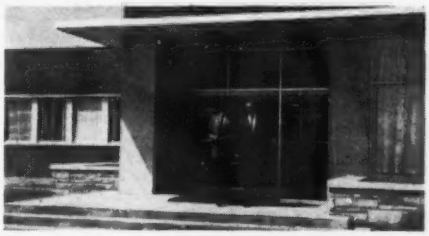
The extremely low sulfide content and high assay of Du Pont potassium cyanide make it ideal for all plating solutions in which potassium cyanide is specified. It is particularly suitable for use in modern bright cyanide copper, gold and silver plating baths. Specifications:

(KCN-98% min.; KCl-0.5% max.; Sulfides as S-0.0003% max.)



New modern plant assures reliable domestic source of supply

Centrally located in Memphis, Tenn., Du Pont's new chemical plant (above) is producing the high-quality sodium and potassium cyanides mentioned at left. This new source of supply means that you can depend on Du Pont to meet your needs quickly . . . at all times.



Technical service for you

Du Pont's nationwide staff of technical field men is ready to assist you whenever you ask for help. They're backed by a 2-million-dollar Sales Technical Laboratory in Wilmington, Delaware. All lab facilities are at your disposal. For more information on Du Pont electroplating chemicals and timesaving processes, call your nearest Du Pont representative (see below).

E. I. DU PONT DE NEMOURS & CO. (INC.)
ELECTROCHEMICALS DEPT.,
SODIUM PRODUCTS DIVISION
WILMINGTON 98, DELAWARE

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

For more data circle 388 on Postpaid Card

RUST CONTROL information

When rust puts a "Stop-Order" on your production, what do you do? Where do you look for the cause? How do you find the right answer . . . quickly?

① Send for the new Magnus Rust Control Data File now — it can help you to increase your knowledge of rust . . . its cause and solution.

② At the first sign of rust troubles, call your local Magnus Man (we'll give you his name, address and phone number). He's a specialist whose knowledge and experience in both cleaning and rust prevention can provide the answer to your rust problem.

magnus
CHEMICAL COMPANY INC.
208 South Ave., Garwood, N. J.

For more data circle 389 on Postpaid Card

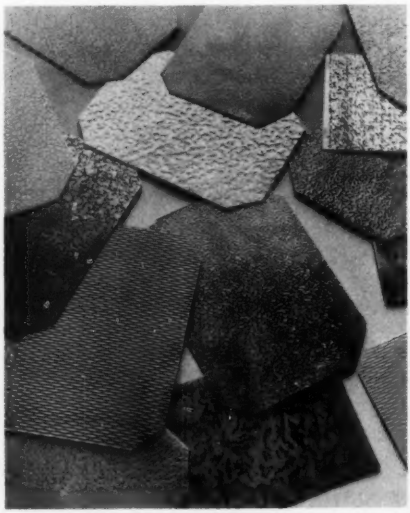
New Products . . .

Multi-Color Electroplates

Multi-colored finishes produced by electroplating on textured metals. Buffing removes the top coat from raised areas, displaying and accenting the underlying metal against a background of the electroplate.

For example, when textured steel is zinc plated and dyed using chromate conversion coatings, buffing causes the bright zinc to stand out in relief, highlighted by the colored-chromate conversion coating in the recesses.

In another variation, a basis metal is plated in a cold-chromium plating bath. On buffing, contrasting lighter spray shades are produced on raised



Metal & Thermit Corporation's multi-color electroplated finishes on textured-metal surfaces are produced by special processes that bring out the underlying metal in highlighted relief. Typical examples are shown of zinc-plated steel dyed with colored chromate conversion coatings. Buffing produces a bright zinc design against the colored background.

areas while the dark gray deposit remains in the recesses.

A multitude of design effects can be achieved by varying the basis metal, the electroplating process and the texturing method. Potential applications include appliance and business machine housings, automotive interiors and trim.

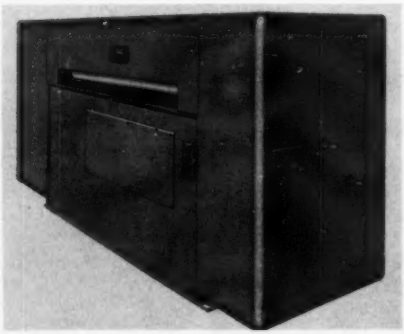
Manufacturer: Metal & Thermit Corp., Plating Div., Rahway, N. J.

For more data circle **39** on Postpaid Card

★ ★ ★

Sheet Polisher Uses Abrasive Nylon

Model S-101 Automatic Polishing Machine is designed for finishing sheet-type materials. It employs an oscillating and rotating wheel-drum made of abrasive-impregnated nylon. Variable oscillating motion of the drum and adjustable feed rate plus light abrasive action produce precision-controlled finishes, the manufacturer reports.



Model S-101 Automatic Polisher: abrasive-impregnated nylon produces fine finish

Feed rate ranges from 20 to 69 f.p.m. Two models accommodate widths of stock to 51 and 61 inches and thicknesses up to 3 inches.

Manufacturer: Yates-American, Beloit, Wisconsin.

For more data circle **40** on Postpaid Card

NEW FINISH FOR ALUMINUM

Simply clean the surface, and you're ready for Uni-Clad ... the revolutionary, low-cost, premium-quality metal coating that bakes to a superhard yet flexible finish. Won't chip, peel. Tremendous chemical resistance. Salt spray and humidity tests show no effect at 2000 hours. One package, dip or spray application. Supplied in colors, clears, flat or gloss. Exceptional performance on other non-ferrous and ferrous metals. Samples available.

UNIVERSAL PAINT & VARNISH INC.

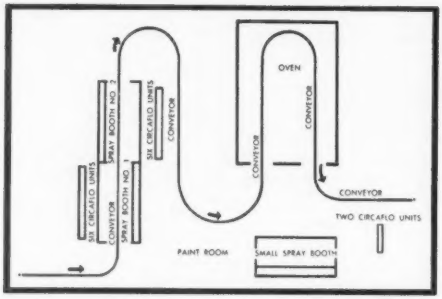
BEDFORD, OHIO • Box 199 • Call BEdford 2-2280

We engineer your finishing problems

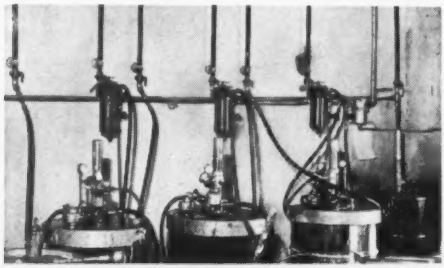
For more data circle 390 on Postpaid Card

Sparkling finish accents the design beauty of Continental vending machines.

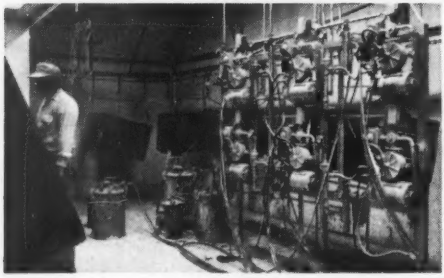
Continental Vending Machine Corp. puts a



Continental uses a conveyor line passing through two water wash spray booths. These booths are side-by-side, faced oppositely. Operator in first booth sprays one side of case and operator in second booth sprays other side.



Central paint supply room is equipped with four SPEE-FLO circulating pump systems. These pumps take four basic colors from original containers through piping to CIRCAFLO heaters at spray booths 250 feet away. Solvent is handled by SPEE-FLO Transfer Pump at extreme right.



Spray booth has bank of six SPEE-FLO Hot Spray heaters. Four heaters are used for the basic colors piped from central paint supply room. Others operate from pressure tanks for specialty colors.

"Selling Smile" on their vending machines with SPEE-FLO Hot Spray Equipment!

In the highly competitive vending machine manufacturing industry, appearance spells sales appeal. Continental Vending Machine Corp.—Miami, Florida Division, uses SPEE-FLO Hot Spray equipment to enhance the appearance of their vending machines with a high quality finish. They have found that SPEE-FLO Hot Spray gives them a quality finish free of orange peel, runs or sags.

SPEE-FLO Hot Spray equipment maintains paint temperature at the required level where viscosity is constant and application uniform. Exclusive SPEE-FLO recirculating system gives full hot spray temperature *at the gun*. Spraying pressures average one-fourth lower. This cuts wasteful overspray—increasing paint mileage and reducing booth clean-up time.

Continental reports that they are now getting a full 1½ mils dry-film thickness in a single-coat application! One quality-controlled coat now replaces two, cutting unit production cost. SPEE-FLO Hot Spray equipment is simple to operate and trouble-free.

The SPEE-FLO Company manufactures a complete line of Hot Spray and HydraAirless equipment. Call your nearest SPEE-FLO distributor, or write to The SPEE-FLO Company, 6614 Harrisburg, Houston 11, Texas, for an on-the-job demonstration.

Free booklet—
"Why Hot Spray?"

The SPEE-FLO Company

6614 Harrisburg, Houston 11, Texas

For more data circle 391 on Postpaid Card

New Products . . .

Aluminum Deoxidizer Simplifies Waste Disposal

A dry acid salt which dissolves in water to make a solution which deoxidizes aluminum alloys before phosphatizing, anodizing, or plating.

Called Metex M-662, the product is nitric-free, chromic-free and fluoride-free. Disposal of waste solution is simplified, and reduction is either eliminated or cut down.

The product produces an active surface for anodizing and an excellent base for any other final treatment.

Carboy handling is eliminated because M-662 is in dry powder form. The product replaces liquid nitric acid and costs less than 20 per cent nitric.

Manufacturer: MacDermid Inc., Waterbury 20, Conn.

For more data circle 41 on Postpaid Card

★ ★ ★

Dyes for Lacquers, Metallized Parts

Cold-dip dyes that can be used on most plastics and lacquered metals are brilliant in color, hold a uniform color while being used, and have improved fadeometer resistance. It is expected that vacuum metallizers will use these dyes to convert aluminum films to brass or gold colors.

The 200 Series of dyes are ready to use and require no heating or mixing. Lacquered parts are immersed in the dye, briefly, to acquire color and then rinsed in clean water. Dyes are used where uniform, transparent colors are required. Such effects are often difficult to obtain by spray-coating techniques.

Manufacturer: Midwest Technical Service, Box 61, Downers Grove, Ill.

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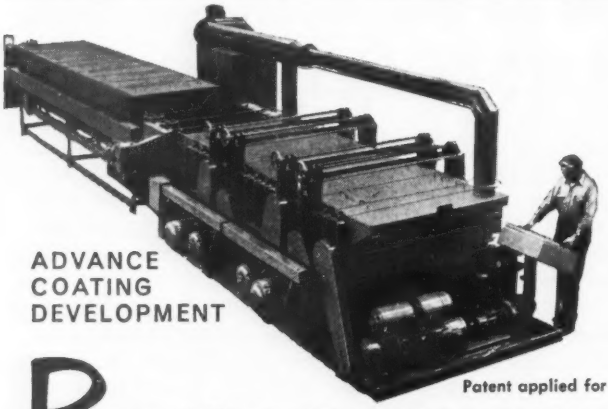

ADVANCE COATING DEVELOPMENT

Patent applied for

Proven IN PRODUCTION

The New Roth SIMPLIFIED coating lines mark another advancement for consistent quality drawing. Here is the answer to a highly economical and automated application for dry type drawing lubricants. This fresh approach to an integrated line reflects a 20-year tradition for progressive cost saving production.

- Revolutionary new brush-coater
- High conveyor speeds
- Heavy-duty design
- Minimum floor space

INVESTIGATE THE COMPLETE ROTH LINE NOW!

ROTH corporation
LORAIN, OHIO

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Free Literature

(Circle numbers on postpaid card opposite page 128 to obtain free literature)

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

50. Zinc Brightener
Information on Ultracast, a slightly acidic brightener for cyanide zinc plating solutions. Excellent throwing power. Takes chromate post treatments. Will not burn at high current densities. A-Chem Supply Co.

51. Hard Finish in 5-10 Minutes
Information on Agateen Ponetic No. 1, a new product that bakes to a hard organic finish in 5-10 minutes at 300 deg. F. Agate Lacquer Mfg. Co., Inc.

52. Plating Solutions, Fluoborate
Technical information on B & A fluoborate plating solutions: lead, tin, iron, copper, nickel, cadmium, indium. These solutions are said to have the following advantages: easy bath preparation; stability of bath composition; ease of control; practically 100 per cent anode and cathode efficiencies; high conductivity; good covering power; produce fine-grained deposits of good color; fast, high-speed operation; readily adaptable for alloy deposition. Allied Chemical Corp., Baker & Adamson-General Chemical Div.

53. Plating Brighteners
Data file on the company's line of "chemically different" plating brighteners. Allied Research Products, Inc.

54. PVC Tank Lining
A six-page brochure. Amer-Plate industrial lining, a dense, flexible polyvinyl chloride sheet for lining plating, pickling and other tanks and vessels. Protects steel and concrete from strong solutions. Two types available: one for existing installations, one for new work. Amercoat Corporation.

55. Anodes for Acid Copper Plating
Reprint of a technical paper that describes a synthesized anode containing small quantities of phosphorous, tellurium, selenium and silver. The Anaconda American Brass Co.

56. Selection of Buffing Compound
Data sheet tells what should be considered in selecting a buffing compound. Ardco, Inc.

57. Rack Dryer
Data sheet describes and illustrates steam-heated rack dryer for quickly evaporating water from rack-mounted parts after plating or other liquid processing. Baker Bros., Inc.

58. Sulfamate Nickel Plating
A 16-page technical manual describes the Barrett sulfamate nickel plating process, a method of depositing nickel having exceptionally low tensile stress without using addition agents. Includes data on applications, physical properties, composition, operation, control, equipment, purification, service aids, analytical procedures. Barrett Chemical Products Co.

59. Paint Stripper
Brochure gives complete details on Epoxystrip, a paint stripper formulated to remove tough finishes easily. Beck Equipment and Chemical Co.

60. Plastic and Rubber Coatings
Leaflet shows typical applications for Belke rubber and plastic coatings. These coatings are useful in protecting formed wire products, tool handles, chains, conveyor hooks, tote baskets, many other products. Belke Manufacturing Co.

61. Strippable Spray Booth Coating
Information on Liquid Envelope. This product is sprayed on the walls of spray booths. As overspray accumulates it can be stripped off easily in large sheets, then booth is recoated. Better Finishes & Coatings, Inc.

62. Cleaning Equipment
Complete information on Blakeslee vapor degreasers and metal parts washers. G. S. Blakeslee, Dept. 104-Y.

63. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co.

64. Metal-Processing Products
A six-page folder describes the products made by Bruce Products Corporation: buffing compounds, drawing compounds, cutting oils, non-rust oils, spray booth coatings, cleaners, polishing wheels, die-cut release agents. Bruce Products Corp.

65. Buyers' Guide for Coated Abrasives
Handy guide to coated abrasives: belts, discs, rolls, sheets. Lists sizes available, applications, grit sizes, etc. Carborundum Company.

66. Complete Finishing Systems
Catalog No. 200 describes company's design, fabrication and installation services for complete finishing systems. Includes information on equipment for pre-paint treatment, paint application, paint drying and baking, make-up air and exhaust systems. Contains descriptions of typical installations and detailed information on individual components. Cincinnati Cleaning & Finishing Machinery Co.

67. Infrared Ovens
Eight pages. Application information, line drawings and charts for prospective users of fused-quartz radiant ovens. Times shown for typical baking and curing jobs. Cleveland Process Co.

68. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc.

69. High-Vacuum Valves, Baffles, Traps
Bulletin 10-1 is a complete guide to the selection and use of the essential accessories for vacuum pumps. 27 pages. Consolidated Vacuum Corporation.

70. Bronze Powders
New color card shows 44 brilliant metallic bronze powders. Golds, coppers, aluminums, grays, browns and pastels. Includes complete directions for use and application. Crescent Bronze Powder Co.

DRUM TRUCKS

The all new truck with many exclusive features for fast handling of drums. Equipped with deluxe neoprene tread wheels for effortless rolling. Price $67.00 f.o.b. Chicago.

ECONOMY ENGINEERING
4513 W. Lake St., Chicago 24, Illinois

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71. Paint-Decorating Equipment
Information on a line of paint-decorating equipment: high-pressure mask washers, nickel electroformed masks, holding fixtures, automatic painting machines. Also vacuum plating racks. Deco Tools, Inc.

72. Tack Rags
Four-page folder describes advantages of Detroit Handy Tac Rags. Detro Sales Co., Incorporated.

73. Paint Pumps
Catalog I-3101-A describes and illustrates paint pumps that pump from the original container; deliver with uniform flow and pressure; supply numerous guns with capacity for fast production. The DeVilbiss Co.

74. Rectifiers
Catalog LS describes silicon-diode d.c. power supplies. Dresser Electric Co.

75. Drying and Baking Booklet
Data Booklet D117 shows how heating units and ovens of all sizes and shapes can be built at low cost from prefabricated interlocking infrared sections. Dry Clime Lamp Corp.

76. Copper Plating Chemicals
Literature describes "Coppralyte" Copper Plating Chemicals. E. I. du Pont de Nemours & Co. (Inc.).

77. Drum Trucks
Information on a new hand truck for fast handling of drums. Many new features. Economy Engineering Co.

78. Butadiene-Styrene Resins for Surface Coatings
A 20-page booklet tells what Buton resins are, describes their uses for appliance finishes, automotive primers, can coatings, flat steel primers, other applications. Includes discussion of physical properties, performance qualities, and so on. Enjay Chemical Co.

79. Non-Silicated Soak Cleaner for Aluminum
Operating instructions and data on Aluminum Cleaner NS-35, a non-silicated, mildly alkaline soak cleaner that leaves no patterns on the aluminum to cause a non-uniform anodic coating. Enthone, Inc.

80. Copper Anode
Information on the new Asarco-Max copper anode. Federated Metals Div., American Smelting & Refining Co.

81. Roller Skate Turning Device
Information on roller skate turning devices. Robert I. Fruth Co., Inc.

82. Painting Machine
Information on the new Gasway Kinetic Kurtain Coater. Gasway Corporation.

83. Spray Painting Equipment
Catalog Section A-1: 24 pages on spray guns, tanks, related accessories. Gray Co., Incorporated.

84. Paint Can Shaker
Data sheet on the Bull Dog Shaker, a vibrator that shakes paint cans with the lid on to mix the contents. Grenier & Company.

85. Abrasive Belt Polishing Machines
Bulletin 337-T describes several models of abrasive belt grinders, buffers, polishers, tells what each machine will do, its advantages, general specifications. Hammond Machinery Builders, Inc.

86. Products and Processes for Electroplaters
Brief description of all Hanson-Van Winkle-Munning products, including three new nickel processes, a new copper and a new zinc, plus others. Bulletin PP-103. Hanson-Van Winkle-Munning Company.

87. Automatic Polishing Equipment
Information on automatic polishing and buffing machines. Harper Buffing Machine Co.

88. Copper-Nickel-Chromium and Corrosion Protection
Reprint of a technical paper. Eight pages. Discusses such questions as "Is a copper undercoat prior to nickel of any value?"; "Are results obtained at one outdoor exposure site representative of those obtained at other sites?"; "Are plated parts, especially on cars, giving as good service as they did in the past?"; and others. The Harshaw Chemical Co.

89. Used Polishing Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc.

90. Degreasing Solvent
Data Sheet No. 814 gives specifications, description and uses for Nialk Trichlorethylene, metal degreasing grade. Hooker Chemical Corp.

91. Heavy-Duty Cleaner
Ahcoloid No. 202 is a heavy-duty soak-type alkaline cleaner which removes oily soils that accompany drawing, stamping, threading and similar operations. Data sheet gives complete details. Apothecaries Hall Div., Hubbard-Hall Chemical Co.

92. Cadmium Bright Dip
Technical bulletin gives complete details and operating instructions for Rodip CD-3, a chromate conversion coating that produces a bright, stain-free finish on cadmium without the use of a leach. R. O. Hull & Co., Inc.

93. Tack Rags
Literature on Ideal Tack Rags, specially treated cloths that pick up dust and other particles just prior to application of an organic finish. Ideal Chemical Co.

94. Filtration
Booklet entitled "Modern Filtration for the Plating Industry." Industrial Filter & Pump Mfg. Co.

95. Finishing Small Parts
An advanced system for producing corrosion resistant organic finishes on fasteners and small parts is described in a technical bulletin that is entitled "A Two-Phase System for Producing Corrosion-Resistant Coatings Using Bulk Handling Methods." Reported performance of tested pieces shows the system will produce finishes to meet rust-proofing specifications of fastener users. International Rustproof Co.

96. Wood Tanks
Information on wood tanks for pickling and plating. Kalamazoo Tank & Silo Co.

97. Steam Cleaning-Phosphatizing
An eight-page booklet on the Mark IV combination steam cleaner-phosphate coating equipment, used for cleaning and treating parts too large or too bulky to be processed in tanks. Kelite Corp.

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98. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School.

99. Abrasive Finishing Methods for Copper Plate
Buff speeds, type of buff, compound recommendations, operating hints for producing bright, satin and butler finishes. Lea Manufacturing Co.

100. "No-Air" Spray Painting Equipment
Bulletin 404R describes airless hydraulic Dyna-Spray equipment and accessories. Specifications for four units, portable and stationary. Lincoln Engineering Co.

101. Wash and Rinse Machine
Information on a machine that's designed for cleaning parts between machining operations and prior to inspection. The MacLeod Co.

102. Rust Preventive
Data sheet on Magnafilm 230, an emulsifiable rust preventive which not only furnishes excellent indoor protection, but eliminates fire hazard associated with solvent-type materials. Magnus Chemical Co., Inc.

103. Small Production-Line Degreaser
Data sheet on the Vibra Bantam, a small degreaser designed for in-line production cleaning. It is built to receive, clean, and discharge parts on a continuous basis. Manpro Corporation.

104. Solution Cooler
Bulletin AC-1 describes a packaged refrigeration system designed for cooling plating, anodizing and other corrosive solutions. No coils in tank. No external heat exchanger. Mayer Refrigerating Engineers, Inc.

105. Pearlescent Finishes
Information on Nacromer YNC, an additive that is used in standard organic finishes to produce a pearlescent finish. The Mearl Corporation.

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106. Plating Rack Coating
Information on Unichrome Coating 218X, a plastisol plating rack protective coating. Metal & Thermit Corporation.

107. Heat-Resistant Finish
Sicon, a finish that withstands high temperatures, said to be heat stable (up to 1,000 deg. F.), is fully described in a brochure. The brochure presents a complete table of properties, characteristics and application data. It describes Sicon as a finish that is highly resistant to moisture, oxidation and ultra-violet radiation. Midland Industrial Finishes Company.

108. Paint Mixer
Data sheet on Miracle paint rejuvenators, which mix paint without removing the lid from the container, by shaking the can vigorously. Miracle Paint Rejuvenator Co.

109. Cleaning-Etching Compound for Aluminum
Complete data on Aluminum Etch No. 22, a salt for making solutions which clean and etch all types of aluminum and aluminum alloys. Includes operating instructions, processing procedure, advantages. Mitchell-Bradford Chemical Company.

110. Drum-Handling Tools
Literature on a line of drum-handling tools and equipment: drum wrenches, drum upenders, carts and so on. Morse Mfg. Co., Inc.

111. Protects Polished Surfaces from Scratching
Information on 6100-B Protecto-Mask, a tough, self-sticking paper that protects highly polished or plated surfaces from scratches, gouges, oil marks and blows. Peels off easily, leaves no residue. Mystik Adhesive Products, Inc.

112. Screen Process Supplies
A 64-page catalog on screen-process equipment, colors and supplies. Among the products covered are printed circuit plating and etching resists, epoxy resin ink, silk screen plate-making equipment, film and supplies, other products. Naz-Dar Company.

113. Airless Spray
Two new folders on airless spray systems and a new gun, the Versa Gun. Nordson Corporation.

114. Pressure Blasting with Manufactured Abrasives
Special report describes applications for pressure blasting, tells how to select and use silicon carbide and aluminum oxide abrasives. Norton Co.

115. Polypropylene Plating Barrels
Data sheet describes and illustrates polypropylene plastic barrels, which offer outstanding strength and resistance to chemicals and high temperature. Nu-Lite Plating Equipment Co., Incorporated.

116. Preplate Cleaning
Booklets F5867 and F10501 on anodic preparation of steel for plating. Oakite Products, Inc.

117. Polishing and Buffing Machines
Folder describes eight different polishing and buffing machines; rotary indexing, continuous rotary, horizontal conveyor and straight-line conveyor types. Packer Machine Co.

118. Ultrasonic Degreasing
An 8-page catalog on ultrasonic cleaning equipment. Bulletin 23. Specifications and applications for generators, tanks, filters, rinses, dryers. Phillips Mfg. Co., Inc.

119. Aluminum Etchant
Leaflet tells about Pennsalt AE-16S, a solid aluminum etchant that is non-scaling, dustless, easy to handle. Pennsalt Chemicals Corporation.

120. Industrial Gloves
Gloves cataloged and classified according to use, material, dexterity required, abrasion resistance, chemicals used, other factors that aid the user in selecting the proper glove for a specific task. Pioneer Rubber Co.

121. Finish for Polystyrene
Newly developed finish for polystyrene plastic adheres well, does not craze, has high gloss. Four-page brochure describes this and other finishes for plastics. Sprayed sample included. Randolph Products Co.

122. Electrostatic Spray
No. 2 Process Brochure tells how Ransburg No. 2 Process can improve quality of painted products and cut costs at the same time. Ransburg Electro-Coating Corporation.

123. Gas Burners
Information on infrared gas burners for burn-off and baking ovens. Red Ray Mfg. Co., Inc.

124. Disposable Spray Booth Air Filters
Folder describes and illustrates the use of RP paint arrestors, disposable filter pads that are used in spray booths to remove paint solids from exhaust air. Research Products Corp., Dept. 38.

125. Phosphate Coating for Steel
Four-page brochure describes various phosphate coatings on steel, which bond the paint and protect the metal from underfilm corrosion. Amchem Products.

126. Selecting Barrel Finishing Media
Discussion of problems in the selection of abrasive media and compounds for vibratory and barrel finishing. Illustrations of bonded preforms and hardened steel shapes. Roto-Finish/Ransohoff.

127. Full-View Filter Chamber
Bulletin 401 describes corrosion-resistant full-view filter chambers with capacities of 1 to 1800 g.p.h. Sethco Mfg. Co.

128. Cleaning Machine
Bulletin 107 describes the Simplicity Vibra-Washer, a machine designed to clean or process ferrous and non-ferrous machined parts, stampings and castings at high production rates. Shows how the machine is constructed, how it operates, etc. Simplicity Engineering Co.

129. Safer Solvents
"Methylene Chloride for Raising Solvent Flash Points and Its Effect in 27 Solvents," a reprint of an article on a solvent that improves safety of many solvent combinations. Solvay Process Div., Allied Chemical Corporation.

130. Solvents
Information on acetates, alcohols, aliphatic hydrocarbons, alkanolamines, aromatic solvents, chlorinated hydrocarbons, glycols and polyglycols, glycol ether, other solvents. Solvents & Chemicals Group.

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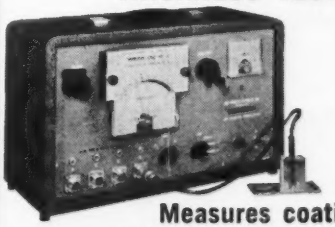

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131. Vibro-Energy Finishing Mill
Six pages on the Sweco Vibro-Energy Finishing Mill. This unit improves the finish on parts by vibrating a load of parts and abrasive media in such a way that the parts move through the vibrating mass in a spiral pattern. Advantages are discussed. Southwestern Engineering Company.

132. Technical Data on Hot Spray
Revised edition of the booklet "Why Hot Spray?" includes technical information on the advantages and possibilities of hot spray painting process. Spee-Flo Co.

133. Finishing Systems
A 36-page book describes and illustrates complete finishing systems and components such as washers, dryers, bake ovens, flow coat systems, dip-painting systems, spray painting systems, others. Includes diagrams of several systems, comparison of operating costs for Spra-Con systems vs. other types. Also has a page of useful engineering formulas and constants. The Spra-Con Company.

134. Adjustable-Joint Spray Nozzles
Reference data on adjustable joints for spray nozzle installations. Bulletin 97. Typical applications for these products: washing, coating, rinsing. Ball-and-socket design permits swivelling nozzle through 50-degree arc. Spraying Systems Company.

135. Buffing Compositions
Bulletin describes 11 special liquid compositions for buffing and coloring. Grade evaluations on liquid tripoli and liquid stainless compositions. Information on customer service lab. Frederic B. Stevens, Inc.

136. Zinc Plating Additive
Data on Zinc Brite, a cleansing and purifying agent for cyanide zinc plating solutions. Sulphur Products Co., Inc.

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137. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax Finishing Products Company.

138. Cob Grit for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc.

139. Titanium Anodizing Cylinder
Data sheet describes and illustrates an all-titanium anodizing cylinder that is useful in bulk processing of bolts, rivets, screws. Requires no stripping, resists acids. Titanium Products Corporation.

140. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products.

141. Barrel Plating Equipment
A 16-page booklet catalogs modern, multi-use barrel plating equipment. Photos and recommendations for barrel assemblies, horizontal barrel units, loading stands, storage and transfer units and final rinse units. Automatic machines, centrifugal dryers, heating and cooling coils, tank linings and rectifiers are also discussed. The Udylite Corp.

142. Thickness Tester
Bulletin DF describes the Dermitron, an instrument for non-destructive coating thickness determination of metals on metals, metals on non-conductors, non-conductors on metals. Unit Process Assemblies, Inc.

143. Electroplating Precleaners
Six pages of data on a line of cleaners especially formulated for use prior to plating. Electrocleaners, soak cleaners, spray cleaners, buffing compound removers, rust and scale removers. J. B. Ford Div., Wyandotte Chemicals Corp.

144. Spiral Buffing Wheels
Information on company's new Spyrl-Roll® buffing wheels. Construction of these buffs cause a "sidewise" cutting action that reduces streaking, cuts time required for buffing. Geo. R. Churchill Co., Incorporated.

145. Junior Automatic Plating Machine
Catalog on the Daw Junior fully automatic plating machine. Has provision for automatic cycle selection, automatic unloading, easy modification. Lasalco, Incorporated.

146. Resist for Printed Circuits
Four pages of information on Resist-Etch, a screen resist for printed circuits. Designed for circuits to receive protective plating, also for general etching and anodizing applications. Meaker Co., subsidiary of Sel-Rex Corporation.

147. Nickel Plating Salts
Information on company's line of "Quality Certified" nickel plating salts. Nuodex Products Co.

148. Solvents and Thinners
Information on solvents and thinners for product finishing: troluoil, Dryolene, Apcothinner, No. 10 Mineral Spirits. Apco Oil Corp.

149. Automatic Plating Equipment
Bulletin M.P. describes automatic barrel and rack-type plating equipment. Crown Rheostat and Supply Co.

150. Lubricant Applicator
Information on the Roth line of improved coating machines that apply dry-type drawing lubricants. Has revolutionary new brush coater. Roth Corp.

151. Decorative Plated Coatings for Improved Durability
Information on nickel plates with improved corrosion resistance. International Nickel Company, Inc.

152. Airless Gun
Information on the A-90 Airless Gun. For indoor and outdoor work. Easily controlled. Better coverage. Variable-spray-angle pattern control. Use with any hydraulic paint pump. No atomizing air required. M & E Manufacturing Co.

153. Textured Paint Coating
Information on a metallic-textured coating that produces a three-dimensional effect. Spray applied, it can be air dried or baked. Universal Paint & Varnish, Incorporated.

154. Racks for Anodizing and Electropolishing
Catalog describes all-titanium and aluminum racks. Pin racks, disc-racks, box-type systems, standard utility racks. Includes discussion of "why titanium racks cost less to use." Servi-Sure Manufacturing Co.

155. Ultrasonic Cleaners
Sheet describes the Ultra-Cleen 320 series of ultrasonic cleaning machines. L & R Manufacturing Co.

156. Tape Manual
A 56-page booklet (P-MIMR) contains 311 illustrations to show ways to utilize pressure sensitive tapes in machining and finishing, electroplating, stamping and fabricating, welding, assembly, painting, packaging and shipping. Minnesota Mining and Manufacturing Co.

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Cratering of Paint on Fiberglass

Question: *For some time we have had a "cratering" problem in painting fiberglass material. We believe this condition to be caused by small capillaries in the polyester and fiberglass material that are very difficult, or even impossible, to locate in the raw material or after the prime coat, which is applied for a smooth finish after sanding.*

However, after the enamel is applied and baked, these craters or pits are quite obvious. They vary in size and extent. If the article with craters is sanded and repainted, they reappear.

Our fiberglass suppliers are of the opinion that this condition is due to the paint or bake cycle. Our paint suppliers strongly disagree and I am of their opinion as no other metal parts show this condition after identical finishing procedures.

This condition is not to be confused with the "fish eyes" of silicone. They are deep, pin-point holes in the finish.

S. H. A.

Answer: We have found that the finishing of reinforced polyesters with conventional organic finishes is indeed a problem. Almost without exception every job has its own peculiarities and the only solution is to properly formulate to meet the specific requirements.

We have found that a normal industrial finishing schedule does not usually work on reinforced polyesters. Through proper solvent balance it is possible to introduce the paint into the interstices of the product, which eliminates the air bubbles and future craters. Then again, we have found that by changing the pigment-binder ratio, the interstices can be covered and no craters appear after baking.

Another method we have found in the finishing of reinforced polyesters is to either glaze coat or apply a primer surfacer which usually does a fairly good job in eliminating craters. As a matter of fact, some reinforced polyester automobile bodies have been finished with conventional automotive schedules including primer surfacer and body enamels without too much difficulty. If craters appear after the primer surfacer has been baked, it is then possible to glaze prior to the application of the top coats.

There is no "rule of thumb" solution to cratering problems in the finishing of reinforced polyesters and only through experience can the problem of craters be eliminated.

G. S. F.

Answer: We agree with you and your paint suppliers that the problem stems from the laminate. Where we have encountered this before it has been our opinion that the difficulty came from uncured resin spots.

We have had some success in solving this problem by applying a surfacer which has high filling properties and ability to absorb uncured resin.

M. D. P.

Answer: We have had cratering problems, in the past, similar to the one described in your letter. We have found that by allowing an air-dry time for the wet finish before baking, the cratering problem has been lessened considerably. The theory behind this seems to be that by keeping the film open long enough to allow solvent to evaporate, the finish, when submitted to a bake, would not trap solvent as the film cured. In other words, without sufficient air-dry time, solvent "trappage" might be occurring; on bake, the top surface film would set up so fast it would trap solvent in the film. This would cause cratering.

We would like to suggest that you spray several panels of fiberglass with your finish and allow each panel to air dry for various periods starting with ten minutes and going as far as one hour. Then take each panel and bake it out at the normal schedule to see if this is the cause of your difficulties.

V. J. G.

Answer: We are somewhat familiar with this condition and agree that it is difficult to locate even after a prime coat has been applied on the part. The pin holing or pitting condition you mention is inherent in the molding operation and it is very difficult if not impossible to eliminate.

In most cases it is necessary to use a glazing compound of some kind and this can only be applied after an enamel coat, not a primer coat, and after the baking operation. Using an air dry system of painting, in a two coat operation, we seem to get better results because the holes can be bridged. Another alternative is to use a wrinkle finish using a low temperature bake cycle in a one coat operation. Use a very fine wrinkle texture which will have a tendency to mask the condition.

E. W. L.

Pre-Coating Antioxidant Material

Question: *On page 139 of your August issue, the Chance Vought Company's pre-coating antioxidant material was described.*

Since we have experienced some difficulty in obtaining information on this product, can you assist us?

W. H. M.

Answer: Possibly your difficulty in obtaining information on this product has been occasioned by the fact that patent applications have been made and the company is understandably reluctant to release full information until full patent protection has been secured.

If you will discuss this matter with your paint supplier, it is possible that he can suggest a material for your use which will have many of the desired properties.

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Screens for Letters, Numbers

Question: *We do a great deal of hand lettering to identify components. We cannot afford a silk screen for each of our low-volume printed items. However, it occurred to us that individual screens for letters and numbers might already be available (from some supplier) that could be hand-selected and locked in a frame, much as a printer does. These then could be rolled, squeegeed or brushed to make neat, uniform letters. We have already considered and rejected engraving, sticking on, stencils and a number of other ideas.*

We would like to contact anyone who might be able to help with this problem.

P. D. C.

Answer: We might suggest as possible sources of a machine (such as you describe) with moveable letters which could be locked into place, the manufacturers listed in the PRODUCTS FINISHING DIRECTORY under "Painting Equipment, spray-mask-decorating" on page 170.

These manufacturers specialize in spray-mask-decorating machines. If they do not have the specific product you want, they may be able to make this product for you at a reasonable cost.

Chemical Conversion Coatings

Question: *We would like to obtain the names of companies able to process large aluminum alloy parts with chemical conversion coatings.*

Facilities must be larger than 3 ft. by 20 ft. by 5 ft. in depth. If you have a list of companies which have such facilities, we would appreciate receiving their names and locations.

H. G. E.

Answer: Since I am unable to suggest specific company names and addresses to you, I have taken the liberty of referring your request to the manufacturers of conversion coatings. Since they are familiar with their customer's plants and capabilities, they can make specific recommendations to you.

★ ★ ★

Electrostatic Spraying

Question: *We would appreciate your forwarding any information or literature you have on electrostatic spraying systems.*

A. R. S.

Answer: We are enclosing with this letter a number of articles reprinted from PRODUCTS FINISHING in which electrostatic spraying is described. These are:

"Drapery Hardware Finished by Plating and Painting," "Koch Uses Hand Held Electrostatic Gun to Coat Brass Furniture," "Production Job Painting: Conveyors Electrostatic Spray Answer Needs," "What Vacuum

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Metallizers Should Know About Electrostatic Spraying."

Further information on electrostatic spraying may be obtained from the companies listed under "Painting Equipment, electrostatic spray" as listed in the PRODUCTS FINISHING DIRECTORY.

★ ★ ★

Wire Brushes

Question: *We wonder if some sort of rotary wire brush is made with the bristles facing the inside for the purpose of wire brushing and polishing 1-inch and 1¼-inch galvanized pipe on production quantities. We will appreciate any information we can get on such a tool.*

E. S.

Answer: Companies that make wire brushes are listed on page 54 of the PRODUCTS FINISHING DIRECTORY, a copy of which we are enclosing.

★ ★ ★

Chromate Conversion Coating

Question: *We are experiencing difficulty in getting epoxy paints to adhere to chromate-conversion-coated aluminum. When a treated panel is bent 180 degrees over a ½-inch mandrel, the epoxy paint breaks away, stripping with it the chromate coating and leaving bare aluminum.*

We would greatly appreciate any information concerning this problem.

R. E. M.

Answer: In flexing the panel, we observed the same lack of adhesion which you found, and also noted that where the paint was removed, there was no sign of the chromate conversion coating on the aluminum surface. From past experience, we believe that the loss of adhesion is caused by the acidity of the wash primer used as a base coat. Chromate conversion coatings are soluble in both acid and alkaline solutions, and the phosphoric acid in combination with the solvents in the wash primer will dissolve the chromate coating, resulting in the total lack of adhesion which can be observed in the panel you sent. As you probably realize, wash primers are used to obtain good paint adhesion on metal surfaces. The attack of the phosphoric acid in the wash primer on the metal provides some "tooth" for bonding. Where a chromate conversion film is present, in order for the phosphoric acid to etch the metal surface, it is necessary for it to completely remove the protective chromate conversion coating, which in itself provides a satisfactory bond for paint.

Where we have run into this problem in the past we have recommended the use of a zinc chromate primer which uses no acid, and have eliminated the bonding problem. Try this method. We certainly would be most interested in the results you obtain.

C. W. O.

For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

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NEW BOOKS

Guide for Determining Accurate Cost Comparison of Metal Parts Finishing. A cost guide known as the Metal Parts Finishing Cost Guide is especially designed for determining and comparing costs involved in finishing procedures: (1) finishing of parts on the producer's premises, (2) finishing of parts by outside shops, and (3) use of pre-finished metals.

The guide presents cost factors not revealed in "typical studies," surveys, or averages. Comparative figures are confined to the individual operation or sequence of operations for which the guide is used. They take into account raw material prices, hidden costs and expenses that are frequently overlooked when comparing metal finishing costs. Free copy may be obtained from Apollo Metal Works, Dept. MO-3, 66th Place & S. Oak Park Ave., Chicago 38, Ill.

★ ★ ★

1960 Supplement to the A.S.T.M. Metal-Cleaning Bibliographical Abstracts. This supplement covers the period 1958 through early 1960. There are 114 references for this period as well as 100 newly added references for the period prior to 1958. Copies of this book may be obtained from American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Price, $2.00.

New metals present new cleaning problems which must be solved by advanced techniques or combinations of older methods. Ultrasonic cleaning, in-place cleaning of equipment in plants, or of pipe lines, and the cleaning of electronic components are receiving much consideration for the special problems involved. The reader will find not only references of practical application, but also on theory and laboratory evaluation.

★ ★ ★

Bulk and Package Handling Conveyors Described in New Brochure. A 56-page brochure (catalog 70) is available from Conveyor Systems, Inc., 6451 Main St., Morton Grove, Illinois.

The brochure has many illustrations of engineered systems, special applications, and package and bulk handling equipment in a wide variety of industries. The complete line of conveyors includes portable and pre-engineered units and custom engineered systems.

Automatic and semi-automatic system handling with custom-engineered installations is covered by some 40 pages of illustrations and application data. A complete range of styles is shown including trolley types, power belt, power roller, wire mesh, wicket, spindle, barrel handling, in-the-floor types, slat type elevator styles, automatic warehousing, order selection systems, and others.

The brochure also outlines the engineering services offered by the company and the parts and repair facilities maintained for servicing customer installations.

Metals Handbook. Eighth Edition, Volume I. Properties and Selection of Metals. 1841 tables, 6700 illustrations, 2806 definitions, data compilations on 456 alloys. 1300 pages. Available from American Society for Metals, Novelty, Ohio. Price, $30.00.

Twelve major articles deal with the corrosion of specific metals and alloys. Other articles on mechanical properties and fabricability of corrosion-resistant metals.

The entire volume is devoted to the selection and properties of metals and is the first of a projected series which ultimately will cover all branches of metals engineering and metalworking. A total of 1300 metals specialists are named as contributors.

A 24-page article on "Selection of Mild Steel for Corrosion Service" provides an unusually comprehensive treatment of a subject of major interest. Equally helpful are the articles dealing with the selection of stainless steels for atmospheric and marine corrosion service and for corrosion service in chemical processing equipment.

Still other articles evaluate the corrosion characteristics of aluminum, copper and copper alloys, lead, magnesium alloys, nickel and nickel alloys, zinc, and precious metals.

Extensive data compilations delineate the properties of corrosion-resistant and heat-resistant alloy castings, cast nickel-base superstrength alloys, cobalt-base alloys, and other alloys of particular interest to corrosion engineers. A greatly enlarged section on stainless steels now provides ample coverage of all stainless steels (cast and wrought), including the more recently developed precipitation-hardening alloys.

Taylor Lyman (right), editor of the new A.S.M. Metals Handbook, presents the first of a printing of 40,000 copies to Allan Ray Putnam, managing director of American Society for Metals, publisher of the book.

★ ★ ★

Impervious Graphite Counterflow Block Heat Exchanger. An 8-page illustrated catalog on new Karbate impervious graphite counterflow block heat exchanger.

The simple block construction that makes possible a range of heat-transfer capacity is described, and the five different flow arrangements using one, three, and five passes are shown.

All dimensions for the five models are included, and the fluid flow patterns made possible by various manifold arrangements are illustrated.

For a copy of catalog section S-6813, write National Carbon Company, 270 Park Ave., New York 17, New York.

news of the finishing industry

company news
new positions
new plants
meetings

NEW PLANTS

New Plant and Laboratories for Lea-Ronal, Inc.

Lea-Ronal, Inc., Jamaica, New York, has moved into a 10,000-sq. ft. plant consisting of office, testing and analytical laboratories, research and development laboratories, pilot plating unit, precious metal refining unit, solution manufacturing area and storage.

In the research and metallurgical section, the company has a pilot plating unit where simulated production runs can be made on customers' articles.

Atlas Powder Merges with Stuart Co., Changes Name

Atlas Powder Company, Wilmington, Del., recently merged with Stuart Company, Pasadena, Calif.

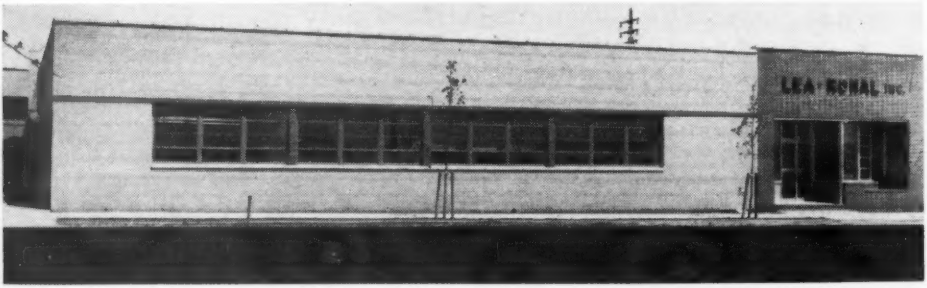
At the same time, Atlas changed its name to Atlas Chemical Industries, Inc. The company now has four divisions: Chemicals, Explosives, International, and Stuart.

Michigan Chrome Acquires California Company

Michigan Chrome and Chemical Co. has acquired Allied Research and Engineering Company of Hollywood, Calif., a company engaged in electroforming. The wholly-owned subsidiary will continue to operate in this field. Paul Harper, formerly west coast district manager for the parent company, will be general manager of the new subsidiary.

Vibratory Equipment Maker Introduces Finishing Machine

Jackson Vibrators, Inc., Jackson, Mich., manufacturer of vibratory



New plant and laboratory for Lea-Ronal: extensive pilot plant, customer-service facilities

motors and equipment, recently introduced a line of vibratory finishing machines. National distributor for the new units is Abrado Finish Corp., Grand Rapids, Mich. The two companies offer complete service and materials for this equipment, including media and compounds.

Enjay Resin Researcher Reports on Japan, the Philippines

"The paint business in Japan, like its general economy, is a highly dynamic and modern enterprise," according to Donald F. Koenecke, who has just returned from an extended tour of that country and the Philippines.

Donald F. Koenecke

Mr. Koenecke, who as Research Associate with Enjay Laboratories, Linden, N. J., estimates Japan's annual coatings production to be about 60 million gallons; the Philippines about 3.5 million gallons per year.

Thermosetting Materials Predominate

According to Mr. Koenecke, Japan's coating manufacture, essentially based on thermosetting materials, such as polyesters, ureas, melamines, phenolics and epoxies, is an important part of its over-all 1.5-billion-pound synthetic resin business. A substantial amount of these resins is manufactured in Japan. A few materials, such as epoxies and some polyesters, are imported.

The Philippines, on the other hand, relies on imports for its resin requirements, except in the case of some alkyd, urea and melamine materials.

Equipment Up-To-Date In Both Areas

In both countries, equipment, plants and laboratories used in protective coatings production are modern, up-to-date and compare favorably with the equipment used in the United States. Both have new and modern buildings housing equipment that is similar to that used in the U. S. and Europe.

Industrial Finishes Paramount

Probably more than 50 per cent of paint production is aimed at product and industrial-type finishes, compared with about 40 per cent in the United States. In Japan and the Philippines, house painting, interior and exterior, is not a common practice. This emphasis on industrial finishes favors such new materials as Enjay Buton resins, epoxies and other modern products.

Can and Foil Coatings

Mr. Koenecke reports Japanese interest in coatings for cans and other metal containers, both for export and

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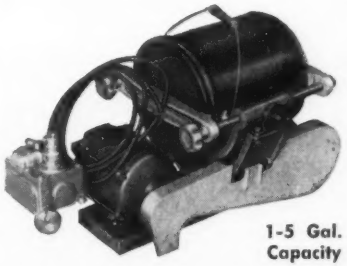

1-5 Gal. Capacity

Model 4 Bull Dog Shaker

Will condition paint to brushing consistency in one to five gallon cans without opening the can. Time required is from two to thirty minutes depending on the paint formulation and the length of time it has been on the shelf. Simply place the can in the saddle, tighten the end plates and flip the switch. Bull Dog will do the rest.

GRENIER & CO., INC.

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domestic use. Though still manufactured on a small scale, aluminum cans for such now-bottled products as beer, wine and soft drinks are experiencing some growth, and appropriate linings are under investigation.

Man-Made Fiber Protects Purity of Gold-Plate Solution

At the Platronics, Inc., electroplating plant in Linden, N. J., platers "gamble" $2,700 worth of pure gold scores of times a day on the ability of a man-made fiber to do a perfect filtering job.

Platronics specializes in precision electroplating for the electronics industry. Working to close standards, the plant plates a variety of tiny electronic components — transistors, connectors, diodes, rectifiers — with gold, silver, platinum and rhodium, and with a wide range of base metals.

In plating pure, 24-karat gold, the gold is dissolved in 60-gallon batches of alkaline cyanide solution, one ounce of metal to each gallon of solution. Since the gold costs $45 an ounce, each batch is worth $2700.

BRUKO . . The only company in America with a full line of processing materials. Order your specially formulated products for cleaning, buffing, and polishing from

BRUCE PRODUCTS COMPANY

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After preparation, the batch is put in the vinyl-lined tank of a Sel-Rex Jet Plater. This complete plating setup is equipped with a pump and a filter to circulate and cleanse the solution.

Carbon anodes and a tumbling barrel containing the components to be plated are suspended in the solution and the current is turned on. During the plating process, the solution is continually pumped through the filter, which removes carbon particles, dirt and trapped insects. The filter must do a perfect cleaning job; if any impurities remain, the $2,700 solution becomes useless for anything but sale to a gold-recovery company for a price considerably below its original cost.

The filter tube used in the Jet Plater is produced by Commercial Filters Corporation, Melrose, Mass. The honeycomb tube has a perforated metal core and a multi-layer wrapping of yarn made from Dynel modacrylic fiber manufactured by Union Carbide Corporation.

Dynel was chosen as the filter material because of its ability to capture fine particles without clogging and because it is unaffected by alkalies and acids. This is important because the Dynel filters are employed with both the alkaline solution used in gold plating and the acidic solutions employed in plating with other types of metals.

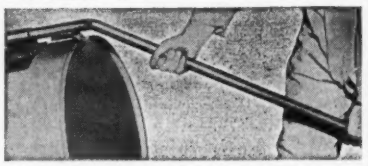
According to Thomas Palumbo, Platronics' quality-control engineer, a filter tube of Dynel fiber will cleanse a minimum of 30,000 gallons of solution before clogging becomes so serious

(continued)

MORSE DRUM UPENDER No. 32

Takes the strain and effort out of upending heavy drums. Has 40" handle offset 35° for top efficiency. Hefty 1¼" hook provides clearance for largest chime. 2½" x 8" toe plate spreads lifting pressure over large area to prevent drum damage. Order Several Today!

MORSE MFG. CO., INC. **$8.40** FOB
762 West Manlius St., E. Syracuse, N.Y.



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Report on a panel discussion of problems commonly encountered in the application of paint . .

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How a radically different machine uses loose abrasives and centrifugal force to produce a buff-smooth finish on complicated, contoured parts . . .

Filter Out Your Plating Rejects

Techniques for efficient filtration and use of activated carbon . . .

How To Train Buffing Foremen and Operators

Tips on how to employ buffs, compounds and people efficiently. By one of the most experienced buffing experts in the automotive industry . . .

Chemical Deburring Solves Problem for A.C. Spark Plug

Zinc die castings are automatically deburred by chemicals in a barrel-processing cycle .

How Boeing Finishes the B-52

Process details for cleaning, treating and painting aircraft parts and assemblies

How To Anodize and Color Aluminum

Alloy selection, surface preparation, anodizing conditions, coloring process, sealing methods . .

Those Versatile Vinyls

Plastisols, organosols and sheet vinyl: who applies them to metal and how . . .

To get a copy of any article listed here, write on company letterhead to

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DYNEL FILTER UNIT maintains purity of 24-karat gold solution used in electroplating process at plant of Platronics, Inc., Linden, N. J. Platronics technician shown here is replacing the Dynel filter unit in one of the company's 15 Sel-Rex Jet Platers. (Photo courtesy Union Carbide Corp., New York.)

that the tube must be replaced. At this point, the clogged filter is too valuable to throw away as is, because it is permeated with the gold solution. Before the tube is discarded, therefore, it is sluiced with distilled water, quickly washing out the gold for reclaiming.

Platronics currently has 15 Jet Platers in operation. Seven of these, with a capacity of a million components per week, are used solely for gold plating.

"GRIPALLOY"

. . . Attractive satin sheen ETCHING PRIMER in black and colors . . . Often used as finish coat . . . Air dries in minutes . . .
. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer.
. . . Excellent resistance to Salt Spray, Gasoline, and Solvents . . .

TENAX, Newark, N. J.
Lacquers—Enamels
Synthetics—Vinyls

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Chem-Mill Manual Being Distributed to Technical Societies, Universities

The Chem-Mill Division of Turco Products Inc., Wilmington, Calif., has prepared an extensive manual on the use of Chem-Milling in industry.

The techniques described and illustrated include all significant advances in chemical milling practice during the past three years.

Copies are being made available to interested technical societies and to many universities where student engineers will have an opportunity to become acquainted with the design, manufacturing and cost advantages of this process.

Scholarship Program for Graduate Study Established by Phillips Manufacturing Company and Diamond Alkali Company

Richard C. Fullerton

A research scholarship program providing engineers with the opportunity for graduate study in metal cleaning operations and processes has been announced by its joint sponsors, the Phillips Manufacturing Company of Chicago, manufacturer of metal cleaning equipment, and the Diamond Alkali Company of Cleveland, producer of chlorinated solvents and chemical products.

The scholarship will be awarded on a yearly basis and will provide special funds and assistance for research study at the University of Pittsburgh. Long active in internal and external

research programs, the two firms will continue the scholarship fund indefinitely to complete a long-range investigation of degreasing equipment, solvents and methods; the chemical and physical changes occurring to chlorinated solvents, perchlorethylene and trichlorethylene, during the actual degreasing process with periodic reports on case histories of the more interesting and complex problems.

The first year's scholarship was awarded to Richard C. Fullerton. Mr. Fullerton received his B.A. in Chemistry from Kenyon College, and served with the United States Air Force in Japan.

Zinc Industry Participates in Symposium on Magnesium Additive in Galvanizing

Representatives of eight zinc producers, the American Zinc Institute and the Canadian Bureau of Mines were shown two methods of adding magnesium to a hot-dip galvanizing bath at a symposium recently conducted by The Dow Chemical Company in Freeport, Texas.

At the W. R. Veazey Research Center, the group heard talks by Charles F. Schrieber, of Dow's Electrochemical Research Department, on "Research and Corrosion Data," and by John A. Heath, of Dow's Metal Cleaning Department, on "Galvanizing Practice Using Magnesium."

The results of testing magnesium additions to hot-dip galvanizing baths are pointed out by Charles F. Schrieber, of The Dow Chemical Company's Electrochemical Research Department, at a symposium in Freeport, Texas.

A practical galvanizing demonstration was conducted by Heath at Dow's own galvanizing kettle. He showed how ingot magnesium could be added directly to the bath, and demonstrated how the same results could be achieved through addition of a zinc-magnesium alloy.

Data gathered by Dow indicates 20 to 90 per cent improved corrosion protection in industrial-marine environments when 0.04 and 0.05 per cent magnesium is present in the galvanizing bath.

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Sel-Rex Executive Elected President of New Jersey Association of Industrial Advertisers

G. S. Corigliano

G. S. Corigliano, manager, Marketing Div., Sel-Rex Corporation, has been elected president of the New Jersey Chapter, Association of Industrial Advertisers. Voted "Advertising Man of the Year" by the same organization, Mr. Corigliano also teaches advertising, marketing and sales at Rutgers, The State University of New Jersey.

NEW DISTRIBUTORS

Barrett Appoints New York Distributor

Barrett Chemical Products Co., Inc., Shelton, Conn., recently appointed Don Blum & Co., Inc., Rochester, N. Y. as distributor for the Barrett sulfamate nickel plating process. The new distributor received his appointment on a non-exclusive basis. Other suppliers also represent Barrett in this area.

IDEAL TACK RAGS

FOR A PERFECT FINISH

Bulk, Bagged, 72 yd. pieces in continuous lengths. Also Rolls.

Immediate Delivery

IDEAL CHEMICAL COMPANY

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Nordson Corporation Appoints Distributors for Georgia, Oregon, Washington

Kenneth H. Daly, vice president of Nordson Corporation, Amherst, Ohio, has announced the appointment of two new distributors for the company's airless spray equipment, paint heaters and other products.

Southern Oxygen Supply Co., Atlanta, will now represent Nordson in Georgia and L.F.R. Knudson Company, Salem, Oregon, for Oregon and Washington.

NEW POSITIONS

Magnus Chemical Company, Garwood, N. J. appointed **Joseph E. Cox, Jr.** and **Roger H. Clarbour** as regional sales managers in the firm's Lubricants Division.

Roger H. Clarbour

Joseph E. Cox, Jr.

Lauristan J. Clark, Jr. named an industrial components salesman in the southern Illinois-St. Louis territory for **Corning Glass Works.**

Robert J. Hull has been appointed supervisor of customer service for the Central sales district of the Technical Products Division of Corning Glass Works. He will be based in Chicago.

★ ★ ★

C. E. Tuttle named manager of **The Diversey Corporation's Southwestern**

Division. Mr. Tuttle will supervise Diversey sales and sales promotion activities in all of Texas and New Mexico and in southwestern Colorado.

★ ★ ★

Robert C. Trees has been named vice president, marketing, by the board of directors of **The Udylite Corporation.**

William Durning

Robert C. Trees

Nordson Corporation, Amherst, Ohio, manufacturer of airless spray coating systems appointed **William C. Durning** sales-service representative.

★ ★ ★

Dale W. Laudenslager named manager of **Archer-Daniels-Midland Company's** new Peoria Chemical Center.

Herbert F. Davidson was named operations coordinator for ADM's Chemical Group plants at Los Angeles, California; Valley Park, Missouri; Pensacola, Florida; Newark and Elizabeth, New Jersey; Ashtabula, Ohio; Wyandotte, Michigan, and the company's new chemical center at Peoria, Illinois.

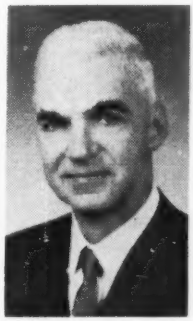
Orlando Graziani becomes operations engineer for the entire Chemical Group with primary responsibility for process studies and other engineering assignments.

★ ★ ★

Calvin E. Snelgrove joined the metal finishing engineering staff of **E. S. Browning Co.,** San Francisco, as chemist and sales engineer.

Gerald A. Smith, formerly president of his own company, **Smith Plating Equipment Company,** Providence, R. I., has joined **Sel-Rex Corporation,** Nutley, New Jersey, as sales engineer in New England. He will headquarter at the Sel-Rex New England office-laboratory, Warwick Industrial Park, Warwick, R. I.

Gerald A. Smith



Harold J. O'Brien

Harold J. O'Brien joined **Hubbard-Hall Chemical Co.,** Waterbury, Conn., manufacturer of cleaners, chemicals and finishing equipment. He will serve as a technical representative in New Jersey.

★ ★ ★

P. H. Long has been named a district manager in **The Diversey Corporation's** Southern Division. Mr. Long will supervise Diversey sales and sales promotion in Virginia, North Carolina, eastern Tennessee and part of Kentucky.

★ ★ ★

Jerome J. Hargarten appointed an assistant director of sales for the **duPont Electrochemicals Dept.** He succeeds **Thomas J. Milligan,** who was transferred to Geneva, Switzerland, as managing director of du Pont de Nemours International, S.A.

G. L. Parmentier, Cincinnati district office manager, replaces Mr. Hargarten as manager of the Chlorine Products Div., Electrochemicals Dept.

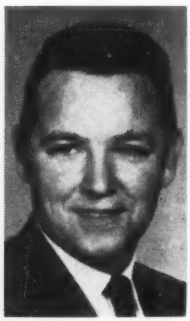
David B. Orden

James Case

Stanford J. Barlett

George P. Bailey

Chester J. Schmidt



Robert Voltmann

Raymond C. Kendall appointed sales manager of **National Ultrasonic Corp.**, Nutley, New Jersey.

David B. Orden named manager of Latin American operations for the International Division of **Metal & Thermit Corporation.** His headquarters will be the company's executive offices in New York City.

★ ★ ★

James Case has joined the staff of **Conforming Matrix Corporation,** Toledo, Ohio, manufacturer of spray-mask painting equipment and supplies.

★ ★ ★

Wyandotte Chemicals Corporation has appointed **George P. Bailey** resident sales manager for its **J. B. Ford Division** in San Francisco and northern California area.

★ ★ ★

Stanford J. Barlett appointed manager of Industrial Cleaning and Finishing Equipment Division, **Alvey-Ferguson Co.,** Cincinnati, Ohio.

★ ★ ★

Robert Voltmann appointed product development manager by **MacDermid, Inc.,** Waterbury, Conn.

★ ★ ★

J. O. Ross Engineering Division of Midland-Ross Corporation announced the retirement of **Chester J. Schmidt,** vice president and general manager of the J. O. Ross Engineering Division. Mr. Schmidt will continue to serve the company in an advisory capacity.

Robert J. Jacobs, vice president and general manager of the company's **Waldron-Hartig Division,** will temporarily assume responsibilities for the Ross Division.

★ ★ ★

R. L. Cawley appointed district manager in the **Diversey Corporation's** Southern Pacific Division. Mr. Cawley will supervise sales activities in Arizona and extreme southern California.

★ ★ ★

Jack D. Stritt appointed vice president and assistant to the president of **James B. Day & Company,** Chicago, Illinois.

Industrial Filter & Pump Mfg. Co. appointed **Bruce Durham** regional sales manager for 14 northeastern states. **Charles J. Novotny** and **Edward H. King, Jr.** are new sales engineers for Industrial Filter. All three will work from the company's main office in Chicago.

★ ★ ★

Mystik Adhesive Products, Inc., Chicago, appointed **Milton R. Stohl** vice president and director of marketing and **Albert H. Ziegler** vice president of technical and manufacturing operations.

★ ★ ★

Earle R. Loomer, Jr. appointed merchandise manager of Carded Cotton Division, **Deering, Milliken, Inc.,** New York City, **Armand A. Durante, Jr.,** replaces Mr. Loomer as market manager of the General Industrial Fabrics Department.

★ ★ ★

Charles E. Laitsch appointed to represent **Conforming Matrix Corporation** in western and northern Michigan. Mr. Laitsch had been manager of engineering for Grand Rapids Brass Co.

Charles J. Novotny

Edward H. King, Jr.

A. A. Durante, Jr.

Bruce Durham

Charles E. Laitsch

Harold G. Spotts

Milton R. Stohl

Bruce A. Fleming

Harold G. Spotts joined **Wyandotte Chemicals'** industrial sales-service force in the Los Angeles district.

Bruce A. Fleming promoted to executive vice president of **Edwin L. Wiegand Co.,** Pittsburgh.

Dr. Maurice J. Kelly appointed director of research laboratories at **Diversey Corporation,** Chicago.

Dr. Maurice J. Kelly

Charles W. Ostrander

Allied Research Products, Inc., appointed **Charles W. Ostrander** technical assistant to the president.

★ ★ ★

W. L. Schoonover appointed industrial representative for **Despatch Oven Co.,** Minneapolis. Mr. Schoonover will be resident engineer serving the states of Georgia, South Carolina and eastern Tennessee.

W. L. Schoonover

Neil Briggs

Neil Briggs appointed sales-service representative for **Nordson-Southern, Inc.,** a subsidiary of **Nordson Corporation,** Amherst, Ohio.

SOCIETIES

Carrique Elected President of M.F.S.A.

J. G. Carrique, president of Alloycraft, Ltd., Montreal, Canada, was installed as president of the Metal Finishing Suppliers' Association, Inc., at the annual meeting of the Association, held June 19 at the Hotel Statler-Hilton, Boston, Mass.

J. G. Carrique

This is the first time that a Canadian has been elected to the presidency of the Association, whose membership is made up of the principal manufacturers and distributors of electroplating and metal finishing supplies and equipment in the United States and Canada. In addition to Mr. Carrique's company, other Canadian member companies are: Armalite Co., Ltd., Toronto; Canadian Hanson & Van Winkle Co., Ltd., Toronto; D & S Aviation Co., Ltd., Pont Viau, Quebec; Lea Mfg. Co. of Canada, and W. W. Wells, Ltd., both of Scarborough, Ontario, Canada.

Other officers and trustees of the Metal Finishing Suppliers' Association, Inc., installed with Mr. Carrique at the June 19 meeting are: Dr. H. L. Kellner, Lea Mfg. Co., 1st vice president; R. M. Norton, Hanson-Van Winkle-Munning Co., 2nd vice president; King Ruhly, Michigan Chrome & Chemical Co., 3rd vice president; J. E. Trumbour, "Metal Finishing," treasurer; E. A. Blount, "Products Finishing," executive secretary; F. P. Green, Crown Rheostat & Supply Co., past president; and (trustees) J. A.

Cairns, Allied Research Products, Inc.; J. M. Davidson, Pennsalt Chemicals Corp.; R. C. Trees, Udylite Corp.; R. E. Belke, Belke Mfg. Co.; S. M. Goble, Federated Metals Div. ASARCO; H. D. McLeese, Metal & Thermit Corp.

Rudy J. Hazucha, Clinton Co., only living founder member of I.F.C., the organization from which M.F.S.A. grew, installed the officers and trustees.

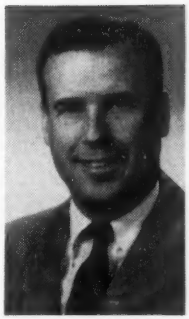
The Metal Finishing Suppliers' Association, Inc., the only trade association of manufacturers and distributors in the finishing industry, is now in its 38th year of service to the industry. The Association was incorporated in 1951. Prominent among the principal projects of the Association is its promotion of the idea of joint hospitality receptions at various local, regional, and national gatherings of the American Electroplaters' Society, at which suppliers entertain their customers. The Association counts as one of its major accomplishments the establishment of an improved climate for doing business in the finishing industry. It has always given strong support and encouragement to the American Electroplaters' Society, the technical organization of the industry.

N.A.M.F. Elects Marlette President, Honors Frank Kaiser

Edward N. Marlette, general manager of Marlette Plating Co., Inc., has been elected president of the National Association of Metal Finishers. He succeeds Robert L. Giesel, Adolph Plating, Inc., Chicago.

The election highlighted the convention of the National Association of Metal Finishers at Boston's Statler-Hilton Hotel, June 15-19.

Other officers elected include 1st vice president, James E. Cogan, Jr., Philadelphia Electroplating Co., Philadelphia; 2nd vice president, Harold E. Coombes, Jr., Crown City Plating Co., El Monte, Calif.; secretary-treasurer, Frank Kaiser, Long Island Mechanical Plating Co., Long Island; and assistant secretary - treasurer, Sal Novelli, Service Plating Co., Brooklyn. P. Peter Kovatis of Montclair, N. J. was renamed executive director.



Edward N. Marlette

Other N.A.M.F. board members include its immediate past president, Robert L. Giesel, Adolph Plating, Inc., Chicago; E. Paul Koeckritz, L. A. Parkerizing, Los Angeles; John T. Hyduke, Durable Plating Co., Cleveland; Glenn H. Friedt, Jr., United Platers, Inc., Detroit; William R. Crawford, Chrome-Rite Corp., Chicago; J. William Carlson, Arrow Plating Co., Chicago; A. T. Leonard, Superior Plating Inc., Minneapolis; Jules Horelick, Allied Metal Finishing Co., Baltimore; Curtis M. Varland, Varland Metal Service, Inc., Cincinnati; and Napoleon A. Vigeant, M & V Electroplating Co., Newburyport, Mass.

Frank Kaiser, president of Long Island Mechanical Plating Co., Inc., Woodside, Long Island, N. Y. became the first recipient of the job metal finishing industry's Man-of-the-Year award.

The award, more correctly described as the Silvio C. Taormina Memorial Award, was presented at the annual banquet of the National Association of Metal Finishers in Boston on June 17.

Named after the former technical advisor of the NAMF who died in 1956, the award is presented to that individual who has contributed most to the advancement of the job metal finishing industry.

Mr. Kaiser, secretary-treasurer of

(continued)

the National Association of Metal Finishers since 1955, was honored for his "outstanding and exemplary service and invaluable contributions" to the industry, particularly the leadership he provided in the reorganization of the N.A.M.F. several years ago.

Borlet Is New President of A.E.S.

Delegates to the 48th Annual Convention of the American Electroplaters' Society elected Chester G. Borlet president of the Society for 1961-62. The election took place at the delegates' meeting, held on June 22 in Boston's Statler-Hilton Hotel.

Chester G. Borlet

E. E. Oberland

The new president is technical director of Grand Rapids Brass Co. and a member of the Grand Rapids Branch. He advanced to the presidency from his former position as first vice president of the society last year.

Other officers advanced include Manuel Ben, Electrochemistry Div., General Motors Research Laboratories, Detroit, to first vice president; and Frank O. Beuckman, development engineer, Eastman Kodak Co., Rochester, to second vice president. Immediate past president of the organization is Dr. W. Andrew Wesley, manager, Research Laboratories, International Nickel Co., Inc., Bayonne, N. J.

The new member on the board to fill the vacancy of third vice president is E. E. Oberland, senior development engineer responsible for planning and development in electroplating, metal cleaning and organic finishing at the Baltimore plant of Western Electric Co. He is a member of the Baltimore-Washington Branch.

Executive secretary of the A.E.S. is John P. Nichols, head of the executive offices of the Society in Newark, N. J.

Zinc Institute Elects Officers and Directors

At the annual meeting of the Board of Directors, F. R. Jeffrey was elected president of the American Zinc Institute. Mr. Jeffrey is president of National Zinc Co., Inc., New York City.

Other officers elected were three vice presidents: J. J. Lennon, American Metal Climax, Inc., New York City; C. E. Schwab, The Bunker Hill Co., Kellogg, Idaho; and H. L. Young, American Zinc Sales Co., St. Louis, Mo. Reelected were G. H. LeFevre, U. S. Smelting, Refining and Mining Co., New York City, treasurer, and J. L. Kimberley, executive vice president and secretary.

Directors elected by the membership for the term expiring 1964 were H. D. Carus, Matthiessen & Hegeler Zinc Co., La Salle, Ill.; Francis Cameron, St. Joseph Lead Co., New York City; C. O. Dale, The Eagle-Picher Co., Miami, Okla.; R. G. Kenly, The New Jersey Zinc Co., New York City; E. H. Klein, The New Jersey Zinc Co., New York City; J. J. Lennon, American Metal Climax, Inc., New York City; R. F. Orr, Athletic Mining & Smelting Co., Ft. Smith, Ark.; C. G. Rice, U. S. Smelting, Refining & Mining Co., Boston, Mass.; C. N. Waterman, American Smelting & Refining Co., New York City; and H. L. Young, American Zinc Sales Co., St. Louis, Mo.

C. E. Schwab was elected a director to fill a vacancy on the Board for the term expiring 1963.

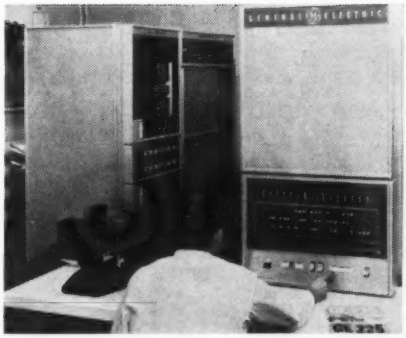
"Information Searching" by ASM Documentation Service To Proceed Full-Scale with GE "Electronic Librarian"

After a year and a half of successful operation of experimental and temporary equipment, American Society for Metals' electronic Information Searching Service now will proceed at full capacity with the new General Electric GE-225 information processing system, an "electronic librarian" that can search through encoded digests of technical articles at the rate of nearly 100,000 per hour.

Arrival of the new machine at Western Reserve University's Center for Documentation and Communication Research signals a renewed effort by the Metals Society to inform American industry that this new problem-solving service has successfully passed the experimental pilot project stage and is now a fully operational service, available to industry today, and capable of handling any and all questions on metals and related subjects.

With a mechanized searching system, valuable information on any desired aspects of metals and closely allied subjects can be on the desks of American industry *within two to three weeks after publication.* This compares with the weeks, months and sometimes years involved in traditional methods of literature searching. Under the old system, in fact, it was simply impossible to be aware of everything happening in the various fields of metals, since more material is being published on the subject today than can possibly be read by technical people.

With ASM Information Searching, $50 per month will keep an engineer, scientist or researcher completely up-to-date on his field of interest—a small fraction of the cost of getting comparable information through traditional library research methods. And the information by electronic searching is current, not months or years late.



Electronic librarian: at work for A.S.M.

ASM's service now has advanced to the point where technical articles, patents and documents on metals and related subjects at the rate of 36,000 per year are being read by a team of experts at Western Reserve, then transcribed into a form of indexed abstract. The technical "meat" of each article is carefully retained. These are then encoded into complex language the GE-225 can read, understand and select, and placed on magnetic tape to become part of the machine library.

The GE-225 acts as an electronic librarian that can read an entire year's output of technical literature in a few hours. It can answer any question directed to it, no matter how general or how specific, simple or complex, with incredible accuracy. When a researcher sends in a question like "What has been published recently on materials for solid-fuel rocket motor cases," his question is encoded and presented to the machine. In a few minutes, the computer has produced a stack of references to all documents published on the subject within the preceding two weeks, or during the past year, depending on the needs of the subscriber.

Coated Abrasives Industry Seeks To Standardize Belt Lengths

Progress is being reported in a campaign to standardize the lengths of

(continued)

coated abrasive belts. Sponsoring body is the Coated Abrasives Manufacturers Institute, whose committee on standardization is seeking to relieve what it believes is a needlessly confusing and costly situation that has been developing for decades.

Under existing specifications, no fewer than 104 different belt lengths are being manufactured in lengths from 12 through 168 inches; some are being made to sixteenths of an inch. Such a situation, of course, tends toward unwieldy inventories, purchasing difficulties and manufacturing expense.

Proposals call for manufacture of coated abrasive belts in 31 lengths: in 3-inch increments from 12 through 36 inches, and in 6-inch increments from 42 through 168 inches.

Analysis of machine specifications shows 278 belt-using machines now in production; of that number, 154 already use one of the 31 proposed lengths. This leaves 124 machines which require belts not covered by the proposed standards. The committee has asked manufacturers of these 124 machines to consider revising or adjusting them to accept the nearest proposed belt length, and to follow the new standards when designing a new machine.

Cash Prizes Available for Best Technical Papers On Organic Finishing

Each year the Federation of Societies for Paint Technology offers a number of awards for outstanding contributions to the technology and science of organic protective coatings. Among the most important of these are the Roon Foundation Awards which offer cash prizes of 175 to 450 dollars.

The Roon Awards, established in 1957 by Leo Roon, head of the Roon Foundation, are for the best technical papers submitted for presentation at the Federation's Annual Meeting by individuals associated with the organic coatings industry.

Dr. Adolf C. Elm, chairman of the 1961 Roon Award Committee, stated that the committee would welcome suitable papers from technologists and scientists associated with the industry.

Further information regarding the Roon Awards may be obtained from Dr. Elm, c/o The New Jersey Zinc Co., Palmerton, Pa., or from the Federation of Societies for Paint Technology, 121 S. Broad St., Philadelphia 7, Pennsylvania.

MEETINGS

Detroit A.E.S. Annual Stag on July 22

The Detroit Branch of the American Electroplaters' Society has announced plans for its annual Stag Day, to take place at Glen Oaks Country Club in Farmington, Mich. on July 22.

Highlights of the event will be a breakfast, golf all day, a steak dinner,

Detroit A.E.S. Golfers on Annual Stag Day

floor show, free beer, and the awarding of over $700 worth of door prizes.

The number of participants in the 1961 Stag Day is expected to exceed the 750 members and guests in attendance last year.

Stag Day Committee members for 1961 are as follows: general chairman, Louis J. Camill; entertainment chairman, William Lovell; food and drink chairman, Roger E. Marce; door-prize chairman, John F. Siefen; ticket and finance chairman, Robert H. Dudley; athletic chairman, William Lumsden; and publicity chairman, William G. Anderson.

TRAINING COURSES

Free Course in Electroplating

The course of study in electroplating given at the Fort Greene Evening High School, 29 Fort Greene Place, Brooklyn 17, New York, will begin its Fall term on September 14, 1961.

The session is divided into classroom discussion and laboratory experiments. The classroom topics will include simple calculation, reading graphs, chemistry of the plating tank, pH, wetting agents, pitting, deionizing. The laboratory experiments will include solution analysis, Hull cell studies, anodizing.

Registration will be held September 6 and 7, 1961. Class sessions will commence Thursday, September 14, 6:45 P.M. Classes will meet on Tuesdays and Thursdays from 6:45 to 8:15 P.M., including about 6 Fridays. The term begins September 14 and ends January 30, 1962. Register with Louis Serota in Room BW17 or 3E12.

MEETINGS of INTEREST to FINISHERS

July 22. Annual Stag Day, Detroit Branch, A.E.S., Glen Oaks Country Club, Farmington, Mich.

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July 31-Aug. 4. Gordon Research Conference on Electrodeposition, Tilton School, Tilton, N. H.

Oct. 1-5. Fall Meeting, The Electrochemical Society, Statler-Hilton Hotel, Detroit, Mich.

Oct. 16-19. Second International Conference on Vacuum Technology, Sheraton-Park Hotel, Washington, D.C.

Oct. 23-27. 43rd National Metal Exposition and Congress, Cobo Hall, Detroit, Mich.

Dec. 1. Annual Dinner, Melbourne Branch, A.E.S., Melbourne, Australia.

Dec. 1-2. Annual Educational Meeting and Banquet, Detroit Branch, A.E.S., Statler-Hilton Hotel, Detroit, Michigan.

Dec. 15-16. Annual Educational Session and Banquet, Newark Branch, A.E.S., Robert Treat Hotel, Newark, New Jersey.

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"Just pay no attention to him, Alec. He's a factory representative checking on the performance of his company's paint!"

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TWO The patented stabilizers in Blacosolv are the reason users spend less time on cleanout; get more weeks, even more months use from a barrel. Blacosolv eliminates sludging; keeps heating surfaces clean and efficient; remains stable after repeated distillation.

THREE Blacosolv can be used on *all* metals, ferrous and nonferrous or combinations thereof. Blacosolv leaves metal parts clean and bright without etching or staining. It resists heat, air, light and eliminates acidity from contaminants, while remaining neutral and non-salt-forming . . . the principal reason many other solvents break down so easily.

FOUR Users of Blacosolv gain the unique benefit of field service technicians backed up by 28 years of experience in the manufacture and operation of degreasing equipment and the use of degreasing solvents as well as the most extensive research laboratories available anywhere.

Blakeslee customers thus get everything from one expert source—equipment, solvents and complete field service.

ALSO AVAILABLE: Blacosolv No. 2 (Perchlorethylene) to meet your requirements for higher vapor temperatures such as are desired in the drying of metals, etc.

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JULY ADVERTISERS' INDEX

A-Chem Supply Co. 110
Agate Lacquer Mfg. Co., Inc. 157
Allied Chemical Corp., Solvay Process Div. 23
Allied Research Products, Inc. 20, 21
Amchem Products, Inc. 16, 17
Amercoat Corp. 79
Anaconda American Brass Co. 29
Apco Oil Corp. 9
Ardco, Inc. 116

Baker Bros., Inc. 100
Barrett Chemical Products Co., Inc. 87
Beck Equipment & Chemical Co. 83
Belke Mfg. Co. 105
Better Finishes & Coatings, Inc. 8
Blakeslee & Co., G. S. 159
Bond Chemical Products Co. 115
Bruce Products Co. 144

Carborundum Co. 69
Cincinnati Cleaning & Finishing Machinery Co. 103
Cleveland Process Corp. ..... Third Cover
Cohn Mfg. Co., Inc., Sigmund 86
Consolidated Vacuum Corp. 4
Crescent Bronze Powder Co. 114
Crown Rheostat & Supply Co. 107

Deco Tools, Inc. 66
Detro Mfg. & Sales Co., Inc. 139
DeVilbiss Co. 80, 81
Dixon & Rippel, Inc. 137
Dresser Electric Co. 96
Dry Clime Lamp Corp. 58
du Pont de Nemours & Co., Inc., E. I. 10, 11, 122, 123

Economy Engineering Co. 130
Enjay Chemical Co. 73
Enthone, Inc. 85

Federated Metals Div., American Smelting & Refining Co. 59
Fruth Co., Inc., Robert I. 147

Gray Co., Inc. 106
Grenier & Co., Inc. 143

H & S Equipment Sales Co. 92
Hammond Machinery Builders, Inc. 7
Hanson-Van Winkle-Munning Co. ..... 30, 31, 97, Fourth Cover
Harper Buffing Machine Co. 63
Harshaw Chemical Co. 112, 113
Hooker Chemical Corp. 95
Hubbard-Hall Chemical Co. 101
Hull & Co., Inc., R. O. ..... Second Cover

Ideal Chemical Co. 148
Industrial Filter & Pump Mfg. Co. 24
International Nickel Co., Inc. 91
International Rustproof Corp. 89

Kalamazoo Tank & Silo Co. 60
Kelite Corp. 46
Kushner Electroplating School 138

Lasalco, Inc. 56
Lea Mfg. Co. 32
Lincoln Engineering Co. 111

M & E Mfg. Co. 18, 19
MacLeod Co. 3
Magnus Chemical Co., Inc. 124
Manpro Corp. 106, 119
Mayer Refrigerating Engineers, Inc. 60
Meaker Co., Sub. of Sel-Rex Corp. 62
Mearl Corp. 47
Metal & Thermit Corp. 26, 27
Midland Industrial Finishes Co. 90
Miracle Paint Rejuvenator Co. 134
Mitchell-Bradford Chemical Co. 6
Morse Mfg. Co., Inc. 144
Mystik Adhesive Products, Inc. 12

Naz-Dar Co. 121
Nordson Corp. 22
Norton Co. 2
Nu-Lite Plating Equipment Co., Inc. 118
Nuodex Products Co. 65

Oakite Products, Inc. 1

Packer Machine Co. 28
Pennsalt Chemicals Corp. 61
Phillips Mfg. Co. 67
Pioneer Rubber Co. 64

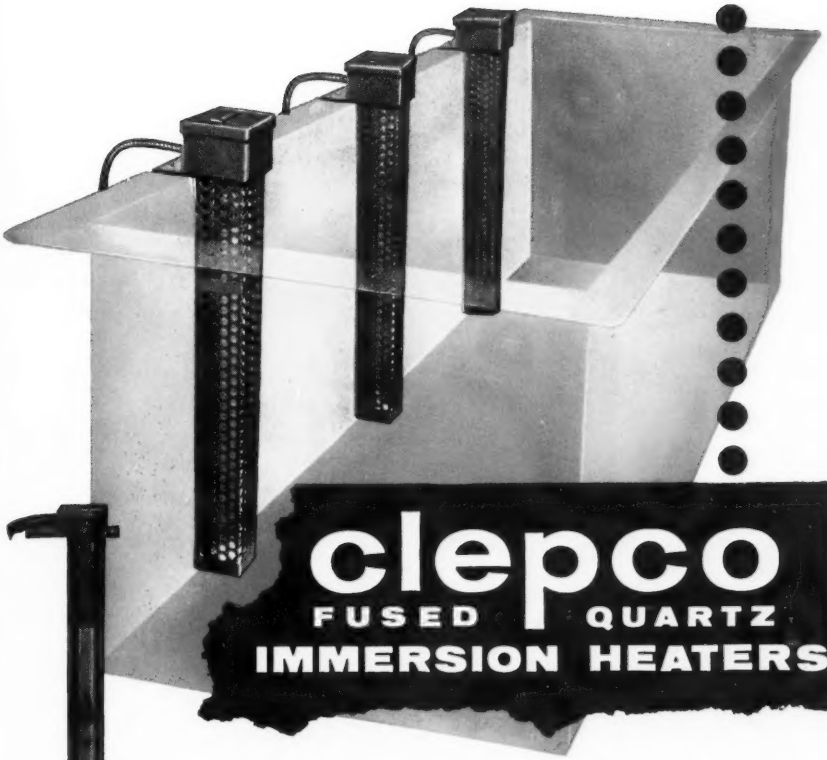
Randolph Products Co. 131
Ransburg Electro-Coating Corp. 25
Red-Ray Mfg. Co., Inc. 98
Research Products Corp. 88, 102
Roth Corp. 128
Roto-Finish/Ransohoff 35

Sethco Mfg. Corp. 117
Simplicity Engineering Co. 109
Solvay Process Div., Allied Chemical Corp. 23
Solvents & Chemicals Group 48, 49
Southwestern Engineering Co. 93
Spee-Flo Co. 126, 127
Spra-Con Co. 108
Spraying Systems Co. 94
Stevens, Inc., Frederic B. 99
Sulphur Products Co., Inc. 138

Tenax Finishing Products Co. 146
Ti-Co Industries, Inc. 132, 147
Titanium Products Corp. 66
True Brite Chemical Products Co. 98

Udylite Corp. 13, 14, 15
Unit Process Assemblies, Inc. 133
Universal Industrial Supply Co. 100
Universal Paint & Varnish, Inc. 125

Wyandotte Chemicals Corp. 53



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Superintendent of Finishing Walter R. Barrett switched to Levelume 220 as a top coat over Permalume for Collis' freezer racks and other wire goods and got these advantages:

- Rejects down 28%. No treeing, no pitting, a much more uniform plate
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Mr. Barrett adds: "Duplex plating's the answer to higher corrosion resistance and better looks. For *superior* duplex at lower cost, it's Permalume and Levelume 220."

For further evidence, contact H-VW-M.

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